'GRAM—INMEDICI, CALCUTTA
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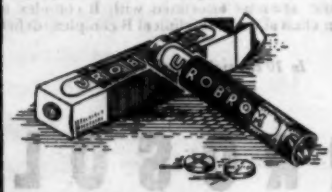

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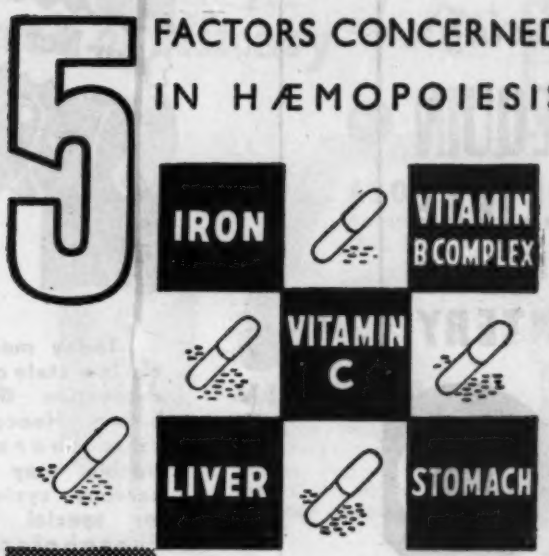
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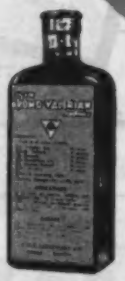

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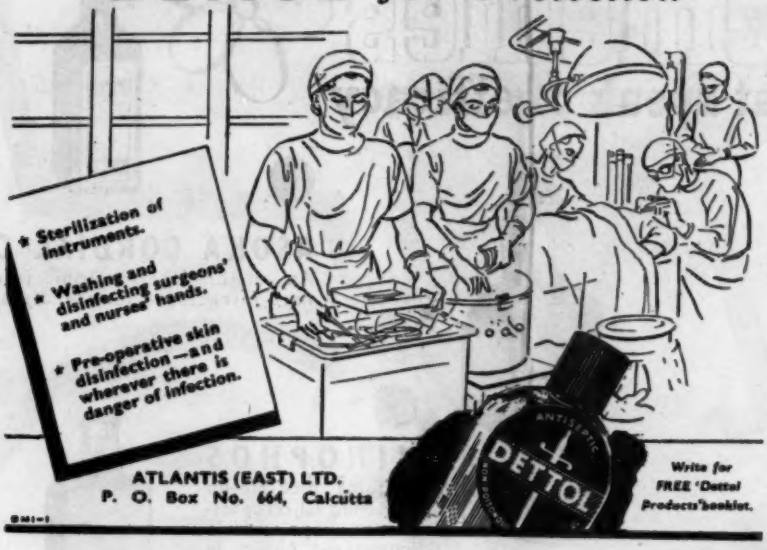
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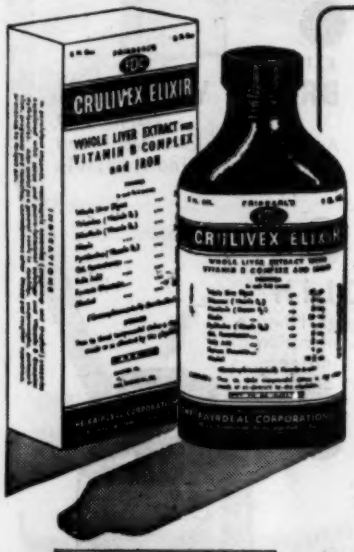

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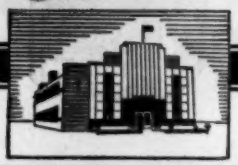

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CIRRHOSIS OF THE LIVER IN MADRAS PROVINCE, SOUTH INDIA*

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Introduction

The word cirrhosis is derived from the Greek word "Kirrhos" meaning tawny yellow. It was first used by Laennec in 1826 to describe the indurated brownish yellow hobnailed livers which he found often associated with chronic alcoholism. The emphasis on the yellow colouration, however, receded to the background and cirrhosis has now come to be synonymous with diffuse fibrosis. In the case of the liver a fibrotic condition can be the common end-result of a variety of lesions of whose origin and pathogenesis it may reveal little knowledge. In some cases of diffuse fibrosis of the liver the specific etiological agent can be identified and the pathogenesis understood—thus we speak of syphilitic cirrhosis either congenital or acquired; cardiac cirrhosis resulting from long continued venous congestion; pigmentary cirrhosis associated with hæmochromatosis and biliary cirrhosis due to infection or obstruction of the biliary channels. When these types are eliminated there still remains a large group of diffuse fibrotic conditions of the liver generally known as portal or Laennec's cirrhosis, about whose etiology there has been much confusion and the issues are unsettled even today.

For many years alcohol was thought to be the causative factor and the condition is even now referred to sometimes as alcoholic cirrhosis. But there was no clear conception or general agreement as to how alcohol brought about the fibrosis. Observation of cases especially in tropical countries showed that portal or Laennec's cirrhosis was widely prevalent in peoples and races who abstain from alcohol on religious or other grounds. Thus the importance of alcohol as the sole cause of cirrhosis rapidly dwindled, but no other agent could be found as the causative factor and the genesis of portal cirrhosis remained vague and obscure. There was, however, a general agreement that the condition represented the end-result of some insidious slow-acting agent nibbling or destroying the liver in bits. This slow and oft-repeated destruction of the liver cells resulted in replacement fibrosis and compensatory hyperplasia from the unaffected healthy cells, ultimately producing the fibrosis and nodularity characteristic of Laennec's cirrhosis. The difficulty, however, was to find out the agent or agents that brought about this change. This was the position until a few years ago.

Recent experimental work has thrown a flood of light on this obscure position and contributed much to our knowledge and understanding of cirrhosis of the liver. One of the major results of these experiments has been the conception that certain specific food materials were essential for the well-being of the liver parenchyma and that deficiency of these nutriments can produce damage to the liver as serious as any noxious substance. This has opened out new ground as yet unexplored in our interpretation of cirrhosis of the liver and that vague group of diseases of this organ known as the yellow atrophies. Animal experiments (Gyorgi and Goldblatt, 1939 and 1942; Himsworth and Glynn, 1944) have shown that two distinct types of hepatic lesions are produced by deficient diets. In one case there is a disturbance in the transport and utilisation of fat resulting in an intense fatty infiltration of the liver cells. These cells bloated with fat globules bring about varying degrees of sinusoidal compression and impair intralobular circulation. When long continued this leads to malnutrition of the liver cells which gradually die followed by fibrous displacement, ultimately developing into a diffuse fibrosis resembling Laennec's cirrhosis. The nutritional defect responsible for this result is mainly the lack of choline—one of the B complex vitamins or proteins containing the essential amino acid, methionine. The macroscopic and microscopic appearance of the liver in these conditions is characteristic. To the naked eye the liver is tawny yellow in colour and microscopically bands of fibrous tissue separate irregular groups of liver cells intensely loaded with fat. The clinical pattern shows a slow

* All the data made use of in this article were gathered in the course of an investigation into the Causation and Pathogenesis of Cirrhosis of the Liver in Madras Province under a grant sanctioned by the Provincial Research Council, Madras.

insidious onset, the arresting complaint being the progressive development of ascites. Jaundice is usually absent except sometimes in the very late stages.

The other hepatic lesion brought about by deficient diet in experimental animals is massive necrosis which either ends fatally or tends to heal with resultant scarring and nodular hyperplasia. The diet deficiency that brings about this lesion is attributed to the absence of sulphur-containing amino acids—cystine and methionine. Repeated attacks of sub-acute necrosis with healing results in diffuse fibrosis and nodularity of the liver. Similar necrotic lesions of the liver with ultimate fibrosis may be brought about by other agents—toxins or virus. In all these cases repeated attacks of jaundice will be a characteristic feature in the clinical history and to the naked eye the liver presents a coarse nodularity. If we accept the conclusions of these animal experiments as applicable to man, then it is evident that a careful clinical history with a study of macroscopic and microscopic appearance of livers in cases of cirrhosis will yield clues as to their pathogenesis and possible etiology. A fatty cirrhotic liver of slow insidious onset especially from a poor economic strata of society can be looked upon as nutritional in origin, while a history of repeated attacks of jaundice will point to a post-necrotic cirrhosis.

This paper deals with a study of 121 cases of portal cirrhosis of the liver with special reference to their clinical history and naked eye and microscopic appearances of the livers. These were treated in the three main hospitals of the Madras Province, S. India, attached to the Medical Colleges—the General Hospital and the Stanley Hospital, Madras and the King George Hospital, Vizagapatam, and came up ultimately for a complete post-mortem examination.

All these cases belong to a low economic strata of society. No definite details about the nature and quality of their diets were available. The only information we could gather was that they were all generally poor.

AGE AND SEX DISTRIBUTION

Age	*Male*	*Female*
1— 9	1	0
10—19	16	0
20—29	19	4
30—39	17	4
40—49	18	8
50—59	16	3
60—69	7	1
70 and above	0	1
	—	—
Total ..	94	21
	—	—

In six cases, no definite information about the age of the patient was available.

The ratio of the incidence of portal cirrhosis of the liver in males as compared to females is 4·5 to 1.

CIRRHOSIS FOLLOWING FATTY INFILTRATION OF THE LIVER

57 cases (47·1%) showed the histological pattern of fatty cirrhotic liver. They sought admission to the hospital for the main presenting complaint of gradually developing ascites and œdema of legs. Nine cases were admitted in an almost moribund condition. The degree of the fatty infiltration of the polygonal cells of the liver and the extent and density of the fibrosis varied. In some cases, almost every liver cell was converted into a globule of fat and thick condensed fibrous bands separated groups of fat-laden liver cells, while in some others though the intensity of the fatty change was the same the fibrosis was not appreciable (Figs. 1, 2 and 3, Plate I). It is significant to note that even in the latter cases with practically very little formation of fibrous tissue, well-marked ascites was a prominent feature. This leads one to the conclusion that in these cases—fatty cirrhotic livers—portal venous obstruction is not the result of fibrous formation but of conditions in the liver that precede the development of fibrous tissue. Well-marked fatty infiltration of the liver is alone sufficient to bring about varying degrees of portal obstruction with the formation of gradually developing ascites, the main arresting complaint for which these patients usually seek admission in a hospital.

CIRRHOSIS FOLLOWING ATTACKS OF JAUNDICE

24 cases (19·8%) gave a clinical history of a previous attack or attacks of jaundice. Apart from this characteristic feature, the signs and symptoms were similar to the previous group—slowly developing ascites being the most important presenting condition. The naked eye appearance of the livers varied. A few cases showed a coarse nodularity but these were relative and merged insensibly with the apperances presented by the cirrhotic livers in the other groups. Microscopically, loose or condensed bands of fibrous tissue separated irregular groups of liver cells (Fig. 4, Plate I). The picture of early fibrosis with the formation of thin strands especially around the portal spaces seen in some of the fatty cirrhotic livers was not present.

CIRRHOSIS WITH NO FAT IN THE LIVER CELLS AND NO HISTORY OF JAUNDICE

In 40 cases (33·1%) no fat could be detected in the polygonal cells of the liver. Their clinical history made no mention of an attack or attacks of jaundice. Slowly developing ascites and œdema legs made them seek admission in the hospital. Microscopic picture of the livers in these cases showed irregular groups of liver cells separated by loose or condensed fibrous tissue (Fig. 5, Plate I). The thin fibrous formation present in the early cirrhosis of fatty livers was not seen. It will be noted that the histological structure of these cases showed a more or less close similarity to the

PLATE I

FIG. 1—Fatty cirrhotic liver. Showing well marked fibrosis.
H & E × 50

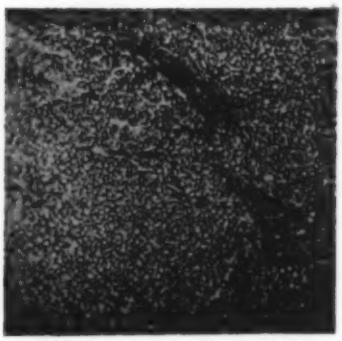

FIG. 2—Fatty cirrhotic liver. Showing moderate fibrosis.
H & E × 50

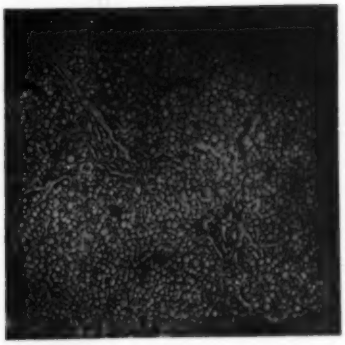

FIG. 3—Fatty cirrhotic liver. Showing very little fibrosis.
H & E × 50

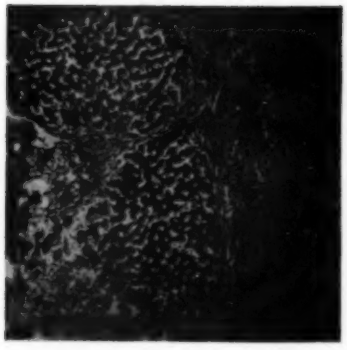

FIG. 4—Cirrhosis of liver following attacks of jaundice. Showing thick bands of fibrous tissue separating irregular groups of liver cells.
H & E × 50

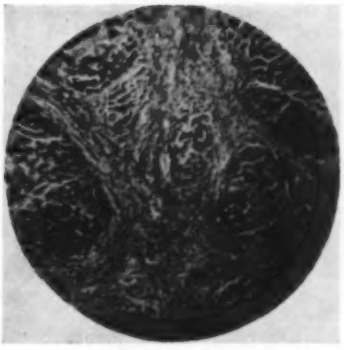

FIG. 5—Cirrhosis of the liver with no fat in the liver cells and no history of jaundice. Showing irregular groups of liver cells separated by thick bands of fibrous tissue.
H & E × 50

PLATE II

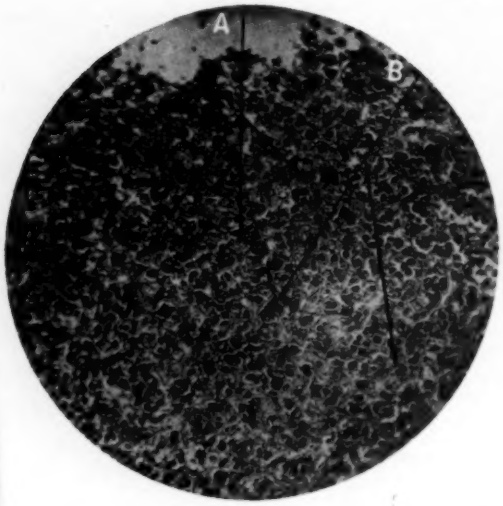

FIG. 1—Left suprarenal gland. Case No. 2355/44. The patient developed shock following a craniotomy after prolonged labour. No abnormal blood loss. Survival 8 hours. The section shows marked congestion of the sinusoids (A) and areas of early degeneration of the middle-zone (B).

H & E × 80

FIG. 2—Right suprarenal gland, Case No. 1788/44. Obstetric shock after manual removal of placenta. Haemorrhage approximately 450 c.cs. A case of mild pre-eclamptic toxaemia. The section shows subcapsular haemorrhage (H), thrombosis of a subcapsular vein (T) and vascular congestion and early thrombosis (A) in the superficial cortical region. The cells in the adjoining area show evidence of early degenerative change.

H & E × 80

FIG. 3—Anterior lobe of the pituitary body. Case No. 1788/44. The section shows marked congestion and early thrombosis of the sinusoids (A) and early degenerative change involving a group of cells (B). *c.f.* Fig. 2.

H & E × 80

Photograph of baby in case reported

MUKHERJEE & DEY—*A Study on Obstetric Shock*

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pattern seen in the cases of cirrhosis following attacks of jaundice.

Discussion

Cirrhosis of the liver is widely prevalent in Madras Province, South India. An analysis of necropsy figures collected upto the end of 1949 showed 3·7% in Madras and 7·2% in Vizagapatam or 5·45% taking the Province as a whole. They are considerably higher compared to the figures in Europe, 1% in Berlin (Menon and Annamalai, 1935) or even Ceylon 3·07% (Fernando and others, 1948). Many tropical diseases have been incriminated by various workers as etiological factors contributing to this predominance, as malaria (Hughes, 1933), bacillary dysentery (Menon and Annamalai, 1935), amœbic dysentery (Rogers and Megaw, 1946). Food deficiency as a factor of importance in the causation of cirrhosis of the liver especially in the tropics has not yet been fully appreciated. In Ceylon, Fernando and others found lipotrophic deficiency in the diet as the cause of cirrhosis in 48·8% of 43 patients in whom a detailed dietetic history was available.

Taking into consideration the clinical history and the histological picture of livers, we have described our cases in three groups:

Cirrhosis following fatty infiltration of liver cells	57 (47·1%)
Cirrhosis following attacks of jaundice ..	24 (19·8%)
Cirrhosis with no fat in the liver cells and no history of jaundice	40 (33·1%)

The microscopic appearance of livers in fatty cirrhosis is characteristic, with most of the liver cells more or less converted into fat globules and varying degrees of fibrous formation (Figs. 1, 2 and 3, Plate I) and it can be easily made out even in a liver biopsy. On an analogy with the results of animal experiments the cause of this condition is evidently a nutritional defect —either a high fat diet or one deficient in lipotrophic factors. From the economic condition of these patients a high fat diet can be ruled out. These cases are therefore due to malnutrition resulting in a deficiency in lipotrophic factors in the diet—vitamins like choline, and proteins containing the essential amino acid, methionine. This group can therefore be called 'Deficiency Cirrhosis'.

The histological pattern of the other two groups shows a close similarity. We are inclined to think that the pathogenesis of both is the same—some factor destroying the liver cells in larger or smaller groups. Only in one type the necrosis and destruction of liver cells was of sufficient severity to cause visible jaundice while in the other, the attacks being milder, they passed unnoticed. They represent grades in the same mode of formation, the difference being only in degree. The agent responsible may be toxin, virus or even food deficiency of a different character—the absence of thio-amino acids. And in the present state of our incomplete knowledge we shall use the non-committal term 'post-necrotic cirrhosis' for these two groups. It must be mentioned that essentially every case of portal cirrhosis including the fatty or deficiency cirrhosis is a post-necrotic cirrhosis—slow destruction of liver cells with replacement fibrosis, only in the deficiency group we know how the destruction is brought about while in the other we are in the dark. Therefore, from an etiological standpoint these 121 cases can be classified into two broad categories:

Deficiency cirrhosis	57 (47·1%)
Post-necrotic cirrhosis	64 (52·9%)

The fact that about half the number in this series of cases come under the category of deficiency cirrhosis is significant. It shows that malnutrition is the most important factor in the causation of cirrhosis in the Madras Province, S. India. This may also explain the greater incidence of cirrhosis in this province and in tropical countries in general as compared to Europe and America—the crucial factor being deficiency in diet.

It is noteworthy that deficiency cirrhosis is a preventable disease. It is also amenable to treatment in the early stages before the fibrosis is well advanced and which can be easily ascertained by a liver biopsy. It is seen from our cases that ascites may develop even with very little formation of fibrous tissue, when the liver is only in an advanced stage of fatty infiltration. In these cases it is possible that the disorder can be corrected and the overload of fat gradually removed from the liver if the derangement in the transport of fat can be rectified. Making good the nutritional defect by the supply of choline and methionine will obviously do good.

The etiological agents causing post-necrotic cirrhosis cannot be determined. Neither malaria nor amœbic dysentery nor bacillary dysentery was found so uniformly associated with our cases as to suggest an etiologiacl relationship and they cannot be held responsible for the cirrhotic condition.

In some cases more than one factor is evidently at work. 13 of our cases which gave a history of jaundice showed varying degrees of faty infiltration of the polygonal cells pointing to a deficiency of lipotrophic factors as well as necrosis of the liver cells.

Alcohol and Cirrhosis

The role played by alcohol in the genesis of Laennec's cirrhosis has remained ill-understood for over a hundred years defying all attempts at positive proof or complete repudiation. The first suggestion of a possible relationship between chronic alcoholism, fatty infiltration and cirrhosis of the liver was made by Thomas Addison, Physican to Guy's Hospital, London, (Addison, 1836). Rokintanzky (1849) and Trousseau (1870) drew attention to fatty infiltration as a frequent finding in the early stages of cirrhosis. In a critical and comprehensive review of the experimental work on alcoholic cirrhosis, Moon (1934) con-

cluded as follows: 'without minimising the contributory or predisposing influence which alcohol may exert, it must be concluded that experimental evidence has not substantiated the belief that alcohol is a direct cause of cirrhosis.' Connor (1938) brought forward evidence to show that the fatty infiltration which is very often found associated with alcoholism was a pre-cirrhotic condition—the first stage in the development of fibrosis, the fat-laden liver cells producing sinusoidal compression and vascular interference. Recent animal experiments by Best and others (1949) have shown that alcohol is not toxic to the liver cells or, to be more precise, is only as toxic as a quantity of cane sugar of the same caloric value. Thus the hitherto obscure relationship between chronic alcoholism and Laennec's cirrhosis becomes clear. It is not the alcohol but the deficient diet of alcoholics that is responsible for the cirrhosis. Indulgence in alcohol with an adequate and well-balanced diet will not cause cirrhosis. Thus the role played by the alcohol in the genesis of Laennec's cirrhosis is found to be its frequent tendency to bring about conditions like loss of appetite, gastritis and poverty whose cumulative effect is a defective intake and absorption of food. It is a deficiency cirrhosis, alcohol helping to bring about the deficiency.

In our series only in 9 cases (7·4%) mention was made in the case sheets of indulgence in alcohol. Almost every worker (Menon and Annamalai, 1935), (Tirumurthi and Radhakrishna Rao, 1934) has discounted the importance of alcohol as a significant factor in the etiology of cirrhosis in South India.

Summary

121 cases of portal cirrhosis of the liver treated in the three main hospitals of the Madras Province, South India, which later came up for a complete post-mortem examination are studied with reference to their clinical history and macroscopic and microscopic appearances of livers.

57 of these cases (47·1%) showed a histological pattern of fatty infiltration with varying degrees of fibrosis. On an analogy with inferences from animal experiments they are classified as 'Deficiency Cirrhosis' —the fatty infiltration being the result of a deficiency in food of lipotrophic factors like B vitamin choline and proteins containing the essential amino acid methionine.

Nutritional deficiency therefore forms the most important etiological factor in the causation of cirrhosis of the liver in Madras Province, South India.

It is noteworthy that these cases are not only preventable but are also amenable to treatment in the early stages before the fibrosis is well advanced, which can be ascertained by a liver biopsy. Ascites may develop even at the stage of well-marked fatty infiltration.

64 cases are classified as 'Post-necrotic cirrhosis'. The factors producing this condition are not known. Neither malaria nor amœbic dysentery nor bacillary dysentery is found responsible for the cirrhosis.

Alcohol plays no significant role in the etiology of cirrhosis in Madras Province, S. India.

Acknowledgment

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A STUDY ON OBSTETRIC SHOCK

(The Role of Adrenal Cortex)

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(Continued from the previous issue)

Shock is generally accepted as the manifestation of a state of depleted circulation. But if alterations in hæmodynamics and deficient oxygenation were the only factors concerned in the fatal outcome of obstetric shock, restoration of the circulatory volume with fluid, plasma, or blood, and oxygen would have been an effective therapy in all cases. In actual practice, however, it is found that the answer is not simple. In not a few cases, neither infusions nor transfusions fail to resuscitate the patient, if the treatment has not been started in the very early stages of the disease. It naturally follows that when shock persists for a certain length of time certain changes occur in the body which prevent the restoration of the circulatory equilibrium although the circulatory volume is regained. A search for the factors responsible for this has been made from the study of necropsy materials. In this connection the work of Sheehan (1937) is important. He pointed out that the principal pathological changes in obstetric shock consist of empty blood vessels, subendocardial hæmorrhage, and necrosis of the anterior lobe of the pituitary body. In recent years the importance of the pituitary and adrenals in shock has been suggested by several observers. Although experimental evidence in this direction appears to be fairly conclusive, the difficulty in demonstrating it in the human subject has been considerable.

Degenerative changes in the pituitary are naturally associated with inhibition of the hormonal activity of the organ. Sheehan and Murdoch's (1938) study of post-hæmorrhagic Symmond's disease adequately proves it. It is unlikely that the pituitary hormonal deficiency would affect the gonadotrophic fraction only. Involvement of the adrenotrophic factor would cause hypofunction of the adrenals. It is not known, however, to what extent such pituitary necrosis as described by Sheehan can be held responsible for an acute condition like obstetric shock. Marked suppression of the pituitary activity is not likely until the degenerative change is well advanced. Thus, marked suppression of adrenal cortical function should not occur until some time has passed after the lesion which gave rise to necrosis of the pituitary. On the other hand, long before the actual necrotic stage is reached, the pituitary gland probably remains in a state of suboptimal function, and thus leaves the adrenal cortex in a similar condition of subnormal activity. Obstetric shock is a hyper-acute condition, the course of the pathological events is short and rapid, and the demand on the adrenal cortex for the maintenance of equilibrium in the state of crisis is naturally great. Thus the appearance of signs of an acute functional failure of these organs under such circumstances may not be surprising.

Long (1942) considers that the adrenal cortex is directly responsible for the control of electrolytes and water metabolism, regulation of the carbohydrate and protein metabolism, the working capacity of muscles, and provision of a mechanism of resistance to conditions of stress such as caused by shock. Hartman (1942) and Hartman and co-workers (1942) believe that the regulation of the permeability of the capillaries and hence of the circulating volume of blood are also under the influence of the adrenal cortex. Adrenalectomised experimental animals have been known to show symptoms which simulate very closely the condition of shock (Cameron, 1947). To determine whether there is any similarity in metabolism between obstetric shock and experimental adrenalectomy biochemical investigations were undertaken in 25 cases studied by the writer (C.M.). These consisted of estimations of serum sodium and potasium, and blod urea, non-protein nitrogen and sugar. The results are discussed in the following section.

SERUM SODIUM AND POTASSIUM IN OBSTETRIC SHOCK

From the protocol it will appear that the minimum value for serum potassium in the series was 24 mg. per 100 ml.The average potassium level for these cases was 30·08 mg. per cent. S.D. 5·67. The control study of the 25 normal cases, referred to in connection with hæmatocrit study, showed the average normal serum potassium to be 19·3 mg. per cent. S.D. 2·54. The maximum normal value obtained was 21·8 mg., and the minimum was 16·7 mg. per cent. Thus, in presence of obstetric shock the serum potassium showed a significant rise above normal. The extent to which the potassium content of the plasma increased was considerable. The minimum value obtained in shock was appreciably more than the maximum in the normal series, while the maximum in shock was over 97 per cent above the normal maximum. The average value in shock was 56 per cent above the normal average, and 37·8 per cent above the normal maximum.

The increase of potassium was attended with a decrease of serum sodium. This reciprocal alteration of potassium and sodium level of the serum was however neither parallel nor proportionate. The minimum value encountered was 264 mg. per cent while the maximum was 317 mg. per 100 ml. of serum. The average serum sodium in shock was 299·7 mg. per cent, S.D. 11·68. In the control series the average sodium level was 311·4 mg. per cent, S.D. 10·12. The maximum and minimum values were 323, and 298 mg. respectively. The drop in the serum sodium level was therefore statistically significant, and was of the order of 3·6 per cent of the normal average, and 7·2 per cent of the normal maximum. The minimum in the series of shock was 11·4 per cent below the minimum normal level.

The change in the sodium and potassium level just described was noted at the first evidence of the clinical symptoms of shock. In 12 other cases where shock was apprehended but did not develop "immediately" after confinement, the serum potassium content was examined in blood samples collected 5 to 10 minutes before the actual appearance of the clinical manifestations of shock. The results obtained were (in mg. per 100 ml.)—

23·0; 23·6; 22·9; 21·9; 25·0; 23·0;
19·0; 25·6; 22·9; 24·5; 23·0; 23·5.

The average of these figures is 23·1 mg. per cent, S.D. 1·86, and compared with normal, the difference is statistically significant. From these findings it appears that some derangement of the normal electrolytic equilibrium takes place just before the symptoms of shock become clinically manifest. It does not seem that the upset of the sodium and potassium balance, *per se*, would bring about the acute fall of blood pressure seen in shock. The equilibrium between sodium and potassium in the blood is maintained by the adrenal cortex. It is likely that during the early stage, when Nature tries to build up compensation, the resources of the 'protector organ' of the body, *viz.*, the adrenal glands are heavily drawn upon. When these organs fail to meet the requirements the electrolytic imbalance becomes evident. The level of serum potassium and sodium is merely the manifestation of the degree to which the adrenals meet the emergency demand. When they function at a sub-optimum level the plasma sodium level falls. Compensation is attempted by the mobilisation of potassium. The rise of potassium is at first compensatory, but soon proves suicidal, for the signs of potassium poisoning are similar to those seen in shock. In fact, in the series studied here, patients with 40 mg. per cent or more of serum potassium were beyond the scope of treatment.

The decrease of sodium and the increase of potassium content of the serum in obstetric shock are similar to the alterations found after damage to or removal of the adrenal cortex. Kendall and others (1936) demonstrated this in adrenalectomised dogs, and also showed that these animals could be maintained in the normal state by continuous administration of sodium as chloride or citrate, and adequate amount of glucose. Unfortunately this is not quite true in human obstetric shock. The improvement obtained with this therapy is only temporary. The reason for this obviously lies in the hæmodilution caused by saline infusions. Plasma and blood are more effective, because they are free from this drawback, and yet supply the necessary sodium in physiological form, the blood adds to the oxygen-carrying capacity.

The loss of sodium in adrenal deficiency is believed by Kendall *et al* (1937) to be due interference with the reabsorption of sodium chloride in the renal tubules. Loeb's (1939) experimental observations also confirm this idea. Corcoran, Taylor, and Page (1943) and Marchand, and Finch (1944) showed that in traumatic surgical shock and crush syndrome a pressor substance elaborated from the damaged tissues causes constriction of the efferent glomerular vesssels of the kidney. Renal cortical vasospasm has also been produced experimentally in crush injury by Trueta an co-workers (1947). This vascular spasm interferes with the function of the tubules and causes degeneration, leads to sodium loss and predisposes to potassium retention.

PROTOCOL OF CASES

Serial No.	*Reg. No.*	*Sodium*	*Potassium*	*Urea*	*N.P.N.*	*Sugar*	*Result*
1.	1885/44	306	27	40	38	80	G
2.	2354/46	300	31	78	54	70	G
3.	45/43	298	35	62	70	65	D
4.	571/43	304	30	44	40	72	G
5.	1159/44	300	28	52	42	78	G
6.	743/44	284	40	88	73	60	D
7.	1310/44	300	28	62	48	74	G
8.	561/43	300	30	49	38	76	G
9.	2355/44	270	40	90	68	62·5	D
10.	320/46	302	28	70	58	70	G
11.	1788/44	290	38	51	42	62	D
12.	729/44	309	28	52	46	78	G
13.	152/43	304	32	64	46	63	G
14.	654/44	310	27	50	39	82	G
15.	266/43	310	28	50	44	76	G
16.	2005/43	264	43	94	70	57	D
17.	2275/44	317	24	37	36	91	G
18.	358/43	306	26	43	40	82	G
19.	587/43	308	24	39	40	88·5	G
20.	2113/44	298	39	72	70	60	D
21.	1590/46	306	29	60	48	70	G
22.	132/44	292	38	68	56	64	D
23.	2635/44	306	27	41	39	84	G
24.	457/45	298	24	38	36	89	G
25.	261/45	300	25	41	36	90	G

All results are expressed in mg. per cent. Results: G—Recovery. D—Death.
Average: Sodium—299·7, S.D. 11·68; Potassium—30·08, S. D. 5·67,
Urea—57·4, S.D. 16·40; N.P.N.—48·7, S.D. 11·84.
Sugar—73·7, S.D. 10·86.

Azotaemia in Obstetric Shock

An outstanding feature of obstetric shock, especially in its aggravated form, and in the terminal stages in all cases, is azotæmia. Retention of urea and non-protein nitrogen in the blood occurs, of course, in many conditions other than shock, *e.g.*, nephropathic states, persistent vomiting, intestinal obstruction, and paralytic ileus. The azotæmia in these cases is usually explained by tissue destruction and toxic absorption. Such an explanation in obstetric shock could apply only to those cases in which extensive tissue trauma is present. But some other explanation must be found for cases which are not associated with trauma, and since the ætiology is varied it is tempting to look for some factor which is common to all cases.

The protocol will show that while the minimum blood urea and non-protein nitrogen were 37 and 36 mg. per cent respectively, the maximum corresponding values were 94 and 73 mg. per 100 ml. of blood. The average blood urea was 57·4 mg. per 100 ml. S.D. 16·40. The average non-protein nitrogen value for the series was 48·7 mg. per 100 ml. S.D. 11·84. In the control series the averages for urea and non-protein nitrogen were 21·4 mg. S.D. 3·91, and 22·2 mg. S.D. 3·14 respectively. The retention of urea and non-protein nitrogen in obstetric shock is thus significant, and appear to be to the extent of 168 per cent for the former, and 108 per cent for the latter. The minimum values in obstetric shock were found to be higher than the maximum values in the normal series. It is of interest to note that the degree of azotæmia was approximately parallel to the height attained by the potassium level in the serum. The maximum retention was observed in the case where the serum sodium was lowest and the serum potassium was highest.

There is however one interesting feature of this azotæmia. The nitrogenous retention was not a manifestation of the early stage of the disease. In none of the 12 cases referred to in the preceding section, where blood samples were studied before the onset of the clinical symptoms of shock, were the blood urea and non-protein nitrogen values different from those observed in the normal series. And further, these values showed only slight deviation from normality in the very early stages of shock, *i.e.*, at the time when alterations in the sodium and potassium level were already evident. For the sake of comparison the results obtained at this stage are given below:—

Urea		
Maximum	30·0	mg. per cent.
Minimum	19·0	„ „
Average	22·9	„ „
S.D.	3·16	
Non-Protein Nitrogen		
Maximum	29·7	mg. per cent.
Minimum	20·2	„ „
Average	23·4	„ „
S.D.	2·98	

It will not be wrong to conclude from the above data that the azotæmia of shock is a manifestation of only an advanced stage of the condition, and is an expression of the marked metabolic upset present. Gross albuminuria was, however, not present in any of the cases showing nitrogen retention.

It may be pointed out here that non-protein nitrogenous retention is almost an invariable feature in acute adrenal failure, and after adrenalectomy. Long, Katzin and Fry (1940) showed that the retention of non-protein nitrogen in the blood was associated with a reduction of urinary non-protein nitrogen, and that these effects not only followed adrenalectomy, but also could be rectified with active adrenal cortical hormone. Mayler (1936), McCance (1936) and others have shown that this azotæmia is closely related to the sodium loss from the body. Harrison and Darrow (1939) pointed out that the loss of sodium chloride in the urine which occurred after the removal of the adrenal glands gave rise to a decrease in the glomerular filtration, and this in its turn caused retention of nitrogenous bodies in the blood. Whether the adrenal glands are directly concerned with the azotæmia of obstetric shock or not, the investigations in the present series indicate that the disturbance in sodium and potassium balance sets in long before azotæmia becomes manifest. The maximum nitrogenous retention was associated with the maximum fall of the serum sodium (Case No. 16). It appears therefore that the mechanism of azotæmia in obstetric shock and experimental adrenalectomy are alike.

Blood Sugar in Obstetric Shock

That a state of hypoglycæmia predisposes to shock has been established beyond doubt, especially by the experimental work of Selye (1946) in connection with what he described as the "alarm reaction". In the series under investigation, blood sugar estimations were made to find out if any relationship existed between obstetric shock and level of blood sugar. The specimens were collected in fluoride tubes at the earliest appearance of the symptoms of shock, and the test was carried out immediately.

The average blood sugar level in the series was 73·7 mg. per cent, S.D. 10·86. In only 8 out of 25 cases studied, the blood sugar was 80 mg. or more, and in 1 case only the level of 90 mg. was reached. In the control series, the average blood sugar was 93·6 mg. per 100 ml., S.D. 8·84. The minimum normal value obtained 84 mg. per cent. The difference between the averages of the two series is significant. Besides, the maximum blood sugar level in obstetric shock was below the average normal apart from shock, and the minimum value in obstetric shock was 38 per cent below the minimum in the control group. In 68 per cent of the cases of shock it was below the accepted minimum standard for normal persons. The lowest blood sugar level in this series was 57 mg. per cent. It may be of interest to point out that this was found in the patient who showed the lowest serum sodium and highest serum potassium values. The changes in the blood sugar, sodium and potassium were concurrent, as these values were ob-

tained from specimens of blood collected at the same time. It is probable that the alteration in the electrolytic balance as well as that of the blood sugar level were both caused by a common underlying condition. The adrenal cortical hormone is believed to be directly concerned with the oxidation of glucose in the peripheral tissues and with glucose synthesis from deaminased protein radicals. Ingle (1942-43) and Reiss, McLeod and Golla (1943) demonstrated that adrenalectomised animals were abnormally sensitive to most types of stress and shock-inducing stimuli. From the study of experimental work it appears that under conditions of stress the adrenal cortex may be incapable of meeting the extra functional demand, and that this failure initiates a train of events, which taken together are identical with those found in shock. It is probable that the reaction of the human organism to shock producing stimuli may not be different from that of experimental adrenalectomised animals.

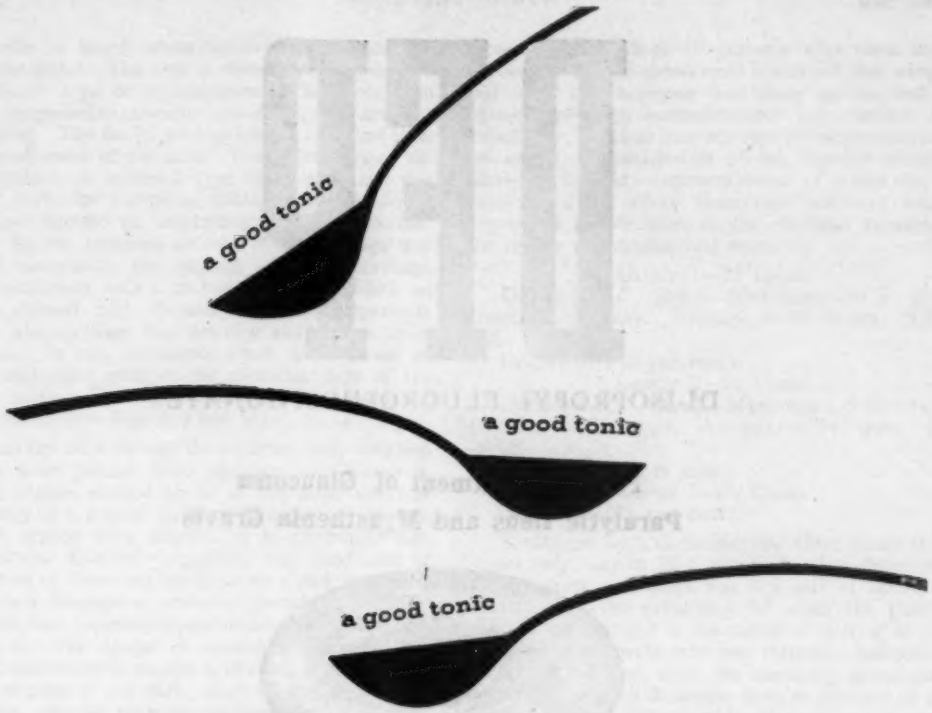
From the foregoing observations it is possible to provide a tentative explanation on a biochemical basis for the complex mechanism involved in the pathological process. Obstetric shock, whether attended with trauma, blood loss, or severe nervous stimulus, causes a fall of blood pressure, deficient circulation, and reduced oxygenation of the tissues. The condition of stress imposes a greater demand on the adrenal cortex in order to maintain the normal body equilibrium. The functional integrity of the organ may suffer at this stage due to (*a*) an inherent deficiency, (*b*) lowered vitality consequent on a fall of blood pressure, vasoconstriction and defective oxygenation, (*c*) exhaustion caused by a pre-existing state of stress and strain, or (*d*) hypo-function resulting from partial failure of the adrenotrophic activity of the pituitary, this last being brought about again by the disordered state of the circulation. The effect is a lessened resistance to stress, deficiency in carbohydrate storage, and an upset of the electrolytic equilibrium—a condition simulating the first stage of the 'alarm reaction' of Selye. If the disturbance in the hæmodynamics is corrected at this early stage and the vitality of the organ is restored, recovery gradually occurs through a stage of compensated reaction. If, however, the initial stage passes unnoticed, complete exhaustion of the adrenal cortex occurs. As a result the plasma potassium continues to rise, and the blood sugar progressively falls. These changes aggravate the already deteriorated state of the circulation and the vicious cycle is completed. To this is now added the state of azotæmia causing a further derangement of the disorganised metabolic and circulatory equilibrium.

Post-Mortem Material

Post-mortem studies reveal the picture of the late stages of obstetric shock and indicate the ultimate effects of an acute circulatory failure on the parenchymatous organs of the body. The initial changes which may have some bearing on the mechanism of shock cannot be studied unless biopsy materials can be obtained sufficiently early in the disease. In the series studied, there were 5 deaths and detailed post-mortem study was possible in 4 of them. The general features of morbid anatomy agreed closely with those described by Sheehan (1937), especially with regard to subendocardial hæmorrhage, which was present in all cases. Three of these 5 cases showed varying amount of centrilobular degeneration in the liver which was of an anoxæmic type. As the present communication deals with the part played by adrenal cortex in obstetric shock a description of only the suprarenal glands and pituitary body will follow.

The *suprarenal glands* in all cases presented subcapsular hæmorrhages on naked eye examination. This lesion was bilateral in three cases, and affected the right organ only in the remaining case. In this last case, however, the hæmorrhage was so extensive that the gland seemed almost disorganised. The hæmorrhages varied from minute petechial spots to areas ranging from 1 to 3 cm. in diameter. The cortex as a whole still looked yellow, but presented in all cases mottled patches of grey and red. These were distinct under slight magnification, and were caused by enormously dilated sinuses, and minute areas of hæmorrhage. Histologicaly, hæmorrhage was mostly confined to the subcapsular and superficial cortical region. Deeper down in the cortex the sinuses were enormously dilated and engorged with blood. Thrombosis of these dilated sinusoids was noted in several places in almost every section examined. The cells in the neighbourhood of these dilated sinuses showed varying degrees of degenerative change. Defective staining reaction and pyknosis of the nuclei formed the commonest picture. Complete dissolution of the cells was not noticed in any section, but the duration of shock in none of these cases was more than 8 hours. The degeneration was diffuse and patchy. In the adjoining cells vacuolation was pronounced. Lipoid deposit was scantier than normal. The thickness of zona fasciculata appeared to be reduced, and that of the reticularis increased. This was noted in three out of four cases examined. The medulla in every specimen examined showed diffuse and extensive hæmorrhage. No frank change was noticed in the chromaffin cells (*see* Figs. 1 and 2, Plate II).

The *pituitary body* presented obvious naked eye lesions in 3 out of 4 cases studied in this series. One case showed a small area of hæmorrhage in the anterior lobe just under the capsule of the gland. In all four specimens pale homogenous areas suggestive of necrosis were evident. Under low magnification these areas were more clearly visible. They were multiple and scattered, and showed no consistancy of location or distribution among the specimens examined. Around these pale areas a zone of congestion was usually present. Histologically, the general appearance was that of vascular congestion and necrosis. The vascular changes affected the sinuses of the anterior lobe; these were considerably dilated, engorged with blood, and presented evidences of early thrombosis. All the sinusoids, however were not equally affected. The change was most marked in the neighbourhood of, and around the area of necrosis. The necrosis was patchy and diffuse. Its extent varied from a small group of



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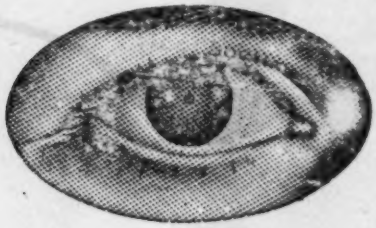

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a few cells to larger areas involving a considerable part of the gland. The cells in these situations showed a coagulative type of degeneration. The protoplasm had lost its granular character and affinity for differential staining. The nuclei were pyknotic, and were even absent from some of the cells. The appearance of the cells suggested an ischæmic type of necrosis, and this together with the enormous dilatation and stasis of the sinuses formed an interesting and characteristic picture. In one specimen an area of hæmorrhage was detected underneath the capsule. The hæmorrhage was in connection with a necrotic area, into which an adjacent dilated and thrombosed sinus apparently opened. Hæmorrhage was however not seen in other specimens. In two specimens small diffuse areas of hæmorrhage were seen in the posterior lobe of the pituitary body. The significance of these could not be interpreted (*see* Fig. 3, Plate II).

When the adrenals and the pituitary body obtained from the same patient were compared the lesions in both the organs seemed to be of the same duration and broadly of a similar nature. It appeared probable that both organs were affected by a common underlying vascular disorder. Applying this conclusion to the function of these organs it appears that if adrenal hypofunction develops in obstetric shock it is probably concurrent with pituitary hypofunction and not subsequent to it. The danger of making a deduction like this from post-mortem studies is obvious. The changes in these organs in the early stage of the disease are not known, and the necropsy findings do not exclude the possibility of deficient function of the pituitary developing before adrenal dysfunction becomes evident.

Corticosterone Therapy in Obstetric Shock

If a primary adrenal cortical deficiency is responsible for obstetric shock, replacement therapy with cortical hormone should succeed in arresting the progress of the condition. This argument formed the basis of the investigation to be described here. The first obstacle in replacement therapy of any kind is attended with the unavoidable difficulty of calculating the correct dosage. In order not to err by giving too small a dose, corticosterone in reasonably large doses was administered to a series of cases, but unfortunately the employment of a large dose restricted the trial to a small number of patients because of the expenses involved.*

For this study the cases were divided into three groups. Group 1 consisted of 25 patients who were treated on orthodox lines with transfusions, glucose, morphia, warmth and stimulants as and when necessary. Group 2, was composed of 25 cases in which the treatment was commenced with adrenal cortical hormone supplemented by resuscitating treatment as indicated in Group 1. The patients in these two groups were taken from alternate cases in hospital practice.

Group 3 consisted of 19 patients who were treated with corticosterone alone, until it was felt that adequate trial with the hormone had been given, and the patients' condition contraindicated any further temporisation. The dose in every case where corticosterone was employed consisted of 15 ml. injected intramuscularly at the very commencement of symptoms, followed by 2 ml. every hour until recovery was in progress or deterioration in the condition appreciable. The results are summarised below:

Group 1—25 Cases

Duration of Shock—Maximum—10·5 hours. Minimum—2 hours. Average 6·88 hours. S.D.—2·52.

Deaths—3 (12 per cent).

Group 2—25 Cases

Duration of Shock—Maximum 8·75 hours. Minimum—1·25 hours. Average—3·74 hours. S.D.—2·08.

Deaths—1 (4 per cent).

Group 3—19 Cases

Deaths—4 (21 per cent).

Treatment with corticosterone alone succeeded in 2 cases only, *i.e.*, in 10·5 per cent. The duration of shock in these two cases was 6·5 and 11 hours respectively. In the remaining 17 cases the patients' condition deteriorated to the extent of causing anxiety, and resuscitating treatment was therefore instituted.

It will be seen from the summary given above that adrenal cortical hormone alone in absence of supplementary resuscitation produced even worse results than resusciation alone. On the other hand, when corticosterone was combined with resuscitative measures, the results were better than those of the other two groups. If the smallness of the series can be excused, the obvious conclusion is that restoring the electrolytic equilibrium and metabolic upset alone with adrenal cortical hormone does not seem to be enough for the restoration of the circulation to the normal state. At the same time rebuilding the circulatory volume and oxygen carrying capacity of the blood only, does not succeed in rectifying the vicious cycle in every instance. From the results of this investigation, both biochemical and therapeutic, the responsibility of the adrenal cortex in obstetric shock cannot be easily ignored. Adrenal cortical hormone restores the metabolic equilibrium, resuscitation restores the circulation. The failure of the adrenal cortex is evidently due to circulatory depletion. Post-mortem study of the suprarenal glands lends support to this conclusion. But the onus of the anterior pituitary in this direction is yet unknown. Once deficiency of the adrenal cortical function develops, a train of events follow. The blood sugar falls, which lowers the resistance of the patient to conditions of stress and strain. The sodium and potassium balance is upset, which causes not only a state of azotæmia, but also a condition of potassium poisoning, manifested by asthenia, further fall of blood pressure, impairment of cardiac activity, and tachycardia. It is at this stage that the vicious cycle is complete. It is obvious that at this stage two factors are involved in the pathological process, the correc-

* The adrenal cortical extract used in these experiments was Percorten (Ciba), which contained 5 mg. desoxycorticosterone per ml. The writers acknowledge the generous help received from the Ciba Pharmaceuticals in this connection.

tion of one may not necessarily be followed by a spontaneous rectification of the other. Of the two, the circulatory disturbance is primary, and needs immediate attention. If resuscitation is begun sufficiently early, the second condition, *viz.*, adrenal failure may never develop to a serious degree. On the other hand, if the initial stage is missed, the metabolic upset adds to the gravity of the condition and requires careful correction. At this stage of the disease, mere correction of the circulatory disturbance may not be enough, and the metabolic derangement may require to be rectified by combining adrenal cortical hormone therapy judiciously with resuscitating measures.

Summary and Conclusion

An investigation was carried out in the various stages of a small series of 25 cases of obstetric shock in order to study the part played by the adrenal cortex in the occurrence of this condition. The results obtained indicate that although metabolic disturbances pointing to adrenal dysfunction appeared early, yet the latter is secondary to the altered state of circulation which invariably accompanies shock. The metabolic dysfunction aggravates the condition and plays an important part in the setting in of irreversible changes and final failure of compensation.

In the treatment of obstetric shock, adrenal cortical hormone cannot replace resuscitative measures, but seems to improve the results of resuscitation if the therapy is commenced early and in sufficiently large doses. It achieves this end by rectifying the metabolic upset, which otherwise imposes a considerable load on the circulation and general equilibrium of the physiological process in the body.

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STUDIES ON THE CHEMOTHERAPY OF TUBERCULOSIS

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The effect of Aureomycin on the growth, morphology and physiology of Myco. tuberculosis has been studied in this article.

Streptomycin as a tuberculostatic agent has failed to fulfil the high expectations raised due to the early appearance of drug-resistant strains and the toxic effect produced specially on the vestibular apparatus (*Brit. M. J.*, 1948). The need for effective chemotherapeutic agents in tuberculosis is as great as ever.

In our study of 'The sensitivity of freshly isolated strain of Myco. tuberculosis to antibiotics and synthetic compounds' (to be published) it was observed that aureomycin, an antibiotic derived from the mould streptomyces aurofaciens, exhibited tuberculostatic property in fairly high dilutions in experiments *in vitro*. Hence a detailed study of the effect of aureomycin on Myco. tuberculosis was undertaken.

Aureomycin has a wide spectrum of activity against many bacteria, rickettsia and viruses (Finland *et al*, 1949; Wong and Cox, 1948). Duggar (1948) using a plate zone technique found inhibition of the growth of tubercle bacilli in the presence of growing strains of strepto aurofaciens.

The value of aureomycin in tuberculosis is still uncertain. Steenken and Wolinsky (1949) found it to be without any deterrent effect on the course of the disease in guinea pigs. Long (1949) has found it useful in one case of renal and bladder tuberculosis. Price and co-workers (1949) have demonstrated the synergistic relation between aureomycin and penicillin both *in vivo* and *in vitro*.

Our experimental results will be of very great interest as aureomycin has exhibited a marked effect not only on the growth but also on the morphological and physiological characters of the tubercle bacilli. The diminished oxygen uptake in bacteriostatic concentration, the high percentage of degenerative forms seen at the end of 17 days, and the increased lag phase in the growth of aureomycin-treated organisms indicate the profound alterations undergone by the organism.

Materials and Methods

1. Effect on Growth—The bacteriostatic studies were performed on freshly isolated strains of Myco. tuberculosis from cases of pulmonary tuberculosis, and also Myco. tuberculosis, Human Type C.R.I. No. B 52-H.I. obtained from the Central Research Institute, Kasauli.

Sligat modification of Dorset's synthetic media at a pH of 6·9 was used. Each tube was inoculated with one loopful (4 mm. in diameter) of a 14-day-old surface culture of tubercle bacilli in the same media.

These surface cultures were read at the interval of eighteen days using the highest dilutions in which there was less than 50 per cent of the control growth as an end point.

The usual technique of grinding a known weight of tubercle bacilli in a mortar and inoculating a measured volume of the suspension gave almost identical results as the one adopted; besides, the results could be evaluated earlier and the chances of contamination during the manipulations were far less; hence preference was given to our technique.

Aureomycin hydrochloride—Lot No. 7-5477 supplied generously by the Lederle Laboratories Ltd. was used throughout the experiments.

Effect on Growth—The bacteriostatic effect of aureomycin on a few fresh strains (isolated before administration of chemotherapeutic drugs) and a detailed investigation of its effect on the Myco. tuberculosis, Human Type C.R.I. No. B 52-A 1 is presented herein.

Effect of Aureomycin on the Growth of Myco. Tuberculosis—The concentration of aureomycin, the strains used and the amount of growth observed are given in Table I.

Table I

Aureomycin micro gms/cc.	*Strain R.M.*	*Strain S.B.*	*Z.M.H. 3*	*C.R.I. No. 52 H. 1.*
	Growth			
0	++	++	++	+++
1	++	++	++	+++
5	++	++	++	+++
10	+	++	++	+
100	+	+	+	±
1000	±	+	+	−

+++ Heavy growth on the surface and up the sides of the tube
++ Heavy surface growth
+ Thin growth covering the entire surface
± Faint skein formation.
− No visible growth.

It is a well-known phenomenon that the individual sensitivity of the infecting micro-organism varies greatly not only within the species belonging to the same genus but also with individual strains. In our series while strain R.M. and C.R.I. No. 52 H.1. are inhibited at 10 γ level, S.B. and Z.M.H. 3. show bacteriostasis only at 100 per c.c.

There was partial inhibition of growth by 1 γ and 5 γ per c.c. on strain C.R.I. No. 52 H.1. for the first seven days only. A secondary outgrowth of the inhibited organisms was observed after this period and the amount of growth was almost that of the control by the end of the test period.

Effect on Morphology—In presence of the bacteriostatic concentration of aureomycin, the gross characteristics of the culture change. In place of the thick friable mat covering the entire surface of the media and running up the sides of the culture tube, the growth is thinner and just covers the surface of the media.

When the cultures were 17 days old smears were made simultaneously, both from the control and the culture inhibited by 100 γ of aureomycin and stained with Ziehl-Neelsen's technique.

The cells grown in the control are long, thin and straight or curved, stain fairly uniformly with a very few granular or beaded forms. The aureomycin-inhibited cells, in contrast, exhibit marked peculiarities. Short thick forms, and a few long filamentous forms are found and most bacilli present swellings particularly at the ends, the staning is irregular both in depth and situation. Numerous bacilli are not coloured by fuchsin. Most of them are granulated, the granules being restricted in some, at the poles, and in many throughout the length of the bacilli. The general picture is that of a culture undergoing degeneration.

Effect on the Viability of Mycobacteria—After the observation period was over, one loopful of the saline-washed surface culture from the control and the various concentrations of aureomycin were transferred to a fresh tube of culture media. The amount of growth observed at the end of 21 days is given in Table II.

Table II—Subculture from the Control and Aureomycin-treated Growth of Myco. Tuberculosis

Tube No.	*Aureo Concentration γ per c.c.*	*Growth at the end of 21 days.*
1	0	+++
2	1γ	+++
3	10γ	+
4	100	±
5	1000γ	−

The rate of growth from the subcultures of the bacilli treated with various concentrations of aureomycin makes an interesting study. At the end of 3 weeks' growth, the culture from 1 γ per c.c. is as luxuriant as the control; that from 100 γ per c.c. is very slight and the intermediate concentrations exhibit varying amounts of growth. This clearly indicates that bacteriostatic concentration of aureomycin may also be bactericidal to a certain extent thus diminishing the number of viable bacteria and hence the amount of growth from the subculture has interfered with the enzymatic systems in such a way that the bacteria take a longer time to enter the logarithmic phase.

Preliminary studies have indicated that bacteriostatic concentrations of aureomycin diminish the oxygen uptake of Myco. tuberculosis as determined by the Warburg Respirometer. This also may be due to interference with the respiratory mechanism or due to bactericidal action, diminishing the number of viable bacteria and thus the oxygen uptake or a combination of both the factors in varying degrees.

Discussion

The influence of therapeutic agents on bacteria is varied. Some act as general protoplasmic poisons while some have specific effects on particular members of the sequences of enzymatic reactions determining growth.

A bacteriostatic agent may act by inhibiting anabolic reactions directly. thus limiting growth by interfering with the synthesis of the cellular material or indirectly by inhibiting oxidative reactions which provide the energy for such synthesis.

Penicillin, at first believed to have no action, has been found to produce partial lysis of Myco. tuberculosis in high concentrations and bacteriostatic action in low concentrations in presence of small inocula of organisms (Kirby and Dubos, 1947). Our experiments indicate that aureomycin too, has a similar action and though by itself it has not yet proved to be of great clinical value, aureomycin might be found useful in combination with other antibiotics, as indicated by the profound alterations produced both in the growth, morphology and physiology of Myco. tuberculosis.

The synergistic action of aureomycin with the other well-known tuberculostatic agents is under study.

Summary

1. The effect of aureomycin on tubercle bacilli *in vitro* is studied, the bacteriostatic concentration determined and the cultural and morphological variations induced described.

2. The mode of action of aureomycin on tubercle bacilli is discussed.

3. The possible use of aureomycin with other tuberculostatic agents is mentioned.

Acknowledgment

My thanks are due to Dr. N. N. De and Dr. K. P. Menon for the helpful suggestions and Messrs. Lederle Laboratories for the generous supply of aureomycin.

N.B. Since writing this paper I have come across an interesting case, where the patient was given aureomycin under the impression that he was suffering from atypical pneumonia. The temperature subsided but relapsed a week later when another course of aureomycin was started. This time too, the temperature subsided but in the meantime the sputum examination revealed tubercle bacilli. The detailed investigation will be presented later but that aureomycin has some effect in controlling the disease is evidenced by the above case.

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TREATMENT SERIES

II

TREATMENT OF DIPHTHERIA

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Diphtheria is a preventable disease. It is also a curable disease and the mortality of cases detected and treated in its early stages is very small

In a series 115 cases under my care in the Medical College Hospitals, Calcutta, there were no deaths amongst 27 patients admitted on or before the 2nd day of disease although 8 of these required tracheotomy. Only those cases whose throat swabs were positive to Corynebacterium diphtheriæ on culture were included in this series. The importance of early diagnosis and treatment can be illustrated from the following analysis of these 115 cases:

Table—Showing Analysis of Cases under Review

Day of Disease	*No. of cases*	*No. of deaths*	*Percentage of mortality*
1st and 2nd day ..	27	0	0
3rd and 4th day ..	44	7	15·9
5th day	27	8	30·8
6th and subsequent days	17	8	46·3

The analysis emphasises, that a favourable outcome in diphtheria is essentially dependent on early diagnosis. The fact is wellknown.

Neglect to examine the throat of a child suffering from nasopharyngeal catarrah, dysphagia, sore throat, cough, or hoarse voice is a serious error.

Prophylaxis

Passive Immunization—Clinical manifestation of the disease can be prevented by injecting 500 to 1,000 units of antitoxin intramuscularly. The method does not prevent infection. The passive immunity lasts only for 3 weeks. The possibility of serum sensitiveness developing is a great drawback. The throat should be inspected daily as it may not prevent the disease appearing in those who are already incubating the disease. On the whole the method is not very satisfactory. It may be used in overcrowded houses with children where isolation cannot be enforced.

Combined active and passive immunization may also be carried out in contacts. For this, 0·2 c.c. of alum precipitated toxoid is given intramuscularly in one arm and 500 units of diphtheria antitoxin into the other at the same sitting. 4 weeks later 0·5 c.c. of A.P.T. is injected. The method gives some immediate protection and active immunity develops 8 weeks after the second injection of A.P.T.

Adult contacts may justifiably have only an inspection of the throat daily.

Active immunization for susceptibles—As a public health measure all children can be immunised against diphtheria by an intramuscular injection of 0·2 c.c. A.P.T. followed by an injection of 0·5 c.c. 4 weeks later. If the first injection causes much reaction the 2nd dose may be reduced to 0·3 c.c. Usually the reactions are mild.

Although the majority of children will develop immunity after this procedure a Schick test can be performed 12 weeks after the last injection, to be certain that the inoculated are immune.

The best age for active immunization is between 8 months to 18 months. Susceptibility in older children can be detected by the Schick test.

The immunity develops 8 weeks after the last injection and lasts from 3 to 5 years (Topley and Wilson, 1946). After this period a 'boosting' dose of 0·5 c.c. i.m. is indicated.

The importance of active immunization may be realized from the data cited by Burrows (1949) as regards the percentage of susceptibility in different age groups (as determined by Schick test): 3 to 6 months—30 per cent; 6 months to 1 year—60 per cent; 1 to 2 years—70 per cent; 2 to 3 years—60 per cent; 3 to 5 years—40 per cent; 4 to 10 years—30 per cent.

General preventive measures should always be adopted. These include quarantine of contacts for 12 days. Isolation of the case till 2 successive throat swabs are negative, and disinfection of fomites are also necessary.

Treatment

Rest—In a case of moderate severity absolute rest in bed in the strict recumbent position should be enforced during the active stages of the disease. Thereafter bed rest is continued with pillows and a back rest successively till at least four weeks have elapsed since the day of administration of antitoxin. The rest period should be prolonged in severe cases and in those with complications. The release from absolute rest and return to activity must be gradual. Fatalities due to sudden cardiac failure may occur if the patient is allowed activity too early in convalescence.

Antitoxin—Corynebacterium diphtheriæ produces an exotoxin from the local site of infection, which first circulates in the blood. It then becomes fixed to the tissues, loosely in the beginning, firmly later on. The cardiovascular and nervous systems, the kidneys and suprarenals are particularly affected. Antitoxin neutralizes the circulating exotoxins and can also antagonise the toxin that is loosely combined with the tissues, but cannot effectively act upon that which is firmly fixed. The effectiveness of antitoxin is, therefore, greatest when administered early in the disease.

The following dosage of serum, which varies with the severity of the case is suggested and is effective.

Mild cases: 20,000 units on the first day of disease and 40,000 units for later cases.

Cases of moderate severity: 50,000 units.

Severe cases: 80,000 units to 100,000 units.

A mild case of diphtheria on the 2nd day of disease receives 40,000 units of antitoxin in the Medical College Hospital, Calcutta.

There is often difficulty in classifying the cases and the following criteria may be helpful:

Mild: Membrane not covering fully the area of both tonsils. Heart rate below 120 per minute. No periadenitis, or fœtor of the breath, no pallor or prostration. No other signs of toxæmia.

Moderately severe: Membrane on both tonsils extending to other areas of the fauces. Heart rate about 140 per minute, slight fœtor or periadenitis. Only slight pallor or prostration.

Severe: Extensive membrane on both tonsils and on soft palate, uvula or pharynx, often around fauces, periadenitis, often fœtor, heart rate about 160 per minute; pallor and prostration both present. Often other signs of toxæmia.

The extent of the patch and the time elapsed since the onset of the disease determines the amount of exotoxin produced. The virulence of the toxin depends generally upon the type of infection. Most cases in Calcutta are of the mitis type.

The total estimated dose of serum should be given in by a single injection and not in divided doses. Should a subsequent examination of the patient place him under a more severe category than the original assessment, an addditional dose may be given.

The antitoxin circulates in the blood for three weeks and there is no utility in administering it in divided doses. The route most commonly chosen is intramuscular on the outer side of the thighs or in the buttocks. The whole of the antitoxin is absorbed in 8 to 24 hours.

The intravenous route is, therefore, indicated in urgent and severe cases to get the maximal concentration in the blood at once.

Sufficient data are not available as to the efficiency of the intraperitoneal route as compared to the other routes.

When a membrane is present in the throat which may be diphtheritic in origin, the administration of antitoxin should not wait for the bacteriological confirmation of the diagnosis.

The usual precautions while giving any serum are also applicable to the administration of diphtheria antitoxin.

Such precautions are specially needed in 2 classes of cases:

(1) Those who have a previous history of serum administration at any period of their life (when more than 7 days have elapsed since the last administration of serum);

(2) Those who give a history of asthma, urticaria, eczema or any other allergic disorder in themselves or in their family.

In such cases an intradermal test for sensitivity should be performed. This is done by injecting intradermally 0·1 c.c. of diluted serum (diluted 1:10 in normal saline). A wheal indicates sensitivity, a spreading wheal with pseudopodial margins or vesicles indicates intense hypersensitivity. Half an hour should be allowed to elapse before the test is declared negative.

Antitoxin should be given to such patients in fractional doses which desensitises them. Otherwise serious anaphylactic shock may ensue.

Desensitization is effected by giving an antihistaminic drug 50 mg. orally and then giving the serum in fractional doses as detailed below:

0·1 c.c., 0·25 c.c., 0·5 c.c., 1 c.c. hypodermically in successive doses every ½ hr.

Then the injection can be given intramuscularly by doubling the dose every ½ hour.

If reactions occur at any time an immediate injection of adrenalin hydrochlor (1:1000) ¼ to ½ c.c. should be given and repeated as often as necessary.

A negative intradermal test does not absolutely preclude reaction, and one should be prepared to meet the emergency if it happens.

Penicillin—Some papers have been published on the use of penicillin in diphtheria. Mention may be made of the communication made by Dodds (1946), De and others (1947), Karelitz and others (1947), Weinstein (1947) and Long (1947).

In a treated case of diphtheria the circulating toxins are neutralized by the administration of antitoxin. The rising immunity response of the body combats the source of infection at the local site and ultimately overcomes it. Corynebacterium diphtheriæ is susceptible to penicillin although its sensitivity is less than *streptococcus hæmolytics*. Penicillin acts on the source of the toxins, the bacteria at the local site of infection. It obviously cannot neutralise the circulating toxins which may be present in the system in a concentration which may prove fatal. It, cannot, therefore be relied upon as the single agent in the treatment of diphtheria in private practice.

The special indications for the use of penicillin are evidences of secondary infection in the fauces, throats, tonsils, or tonsillar glands, or of the lungs. It should also be used in all severe cases of diphtheria.

There is considerable evidence to indicate that the bacilli disappear much earlier from the throat when penicillin is used in addition to antitoxin in a case of diphtheria (Weinstein, 1947; Karelitz 1947; Long, 1947). There is also some evidence that it has an added beneficial effect on the clinical course of the disease when used in addition to antitoxin (Dodds, 1946 and Long, 1947).

Penicillin may be injected by intermittent intramuscular injections (50,000 units 4-hrly.) and should be continued till the patch subsides. The membranes usually subsided in our cases in a period of from 2 to 7 days, with combined treatment.

Other Measures—Adequate cleanliness of the mouth by gargles or irrigation are necessary in patients who have a foul mouth. No local application to the throat is necessary.

Glucose has a reputation of supplying energy and protecting the heart against complications. 2 to 4 teaspoonfuls every four hours may be given.

Diet—An ordinary fever diet consisting mainly of milk or its modifications and fruit juice is sufficient as long as there is dysphagia or sore throat. Adequate fluid intake should be ensured. In the absence of complications half boiled eggs, mashed potatoes, biscuits, porridge and pudding are added to the diet as early as possible.

Nasal Diphtheria—It is usually of a mild variety and provided there is no membrane in the throat, it is the usual practice to give 10,000 to 20,000 units of antitoxin in a single dose.

Laryngeal Diphtheria—Primary laryngeal diphtheria is comparatively rare. In the series of 115 cases mentioned there were 7 primary laryngeal cases (6 per cent). More commonly it is associated with faucial diphtheria.

The treatment is on the same general principles when there is no evidence of respiratory obstruction. With slight suction one has to be prepared to do a tracheotomy, (or as an alternative the patient has to be sent to a hospital). Expectant treatment is justifiable; slight 'suction' may be due to restlessness and spasm or mild obstruction.

In such cases it is often possible to avert a trecheotomy. The following measures may help: (*i*) The immediate administration of the estimated dose of antitoxin in a single dose. (*ii*) Solution of adrenalin hydrochlor (1:1000) ¼th c.c., with atropine sulphate gr. 1/500, hypodermically and repeated after 2 hours, if necessary. (*iii*) Steam inhalations with 2 dr. of tincture benzoin co. to one pint of water. (*iv*) Hot compresses to the neck. (*v*) A sedative mixture such as tincture camphor co., 5 minims, ephedrine hydrochlor, 1/16 gr., potassium bromide, 5 gr., syrup simplex 15 minims

and aqua anisi upto two drachms every 4 hours. (The dosages are suitable for a child aged 2 years).

Tracheotomy should be performed if (1) Suction is persistent and marked as shown by indrawing of the epigastric and hypochondriac regions, of the intercostal spaces, and of the suprasternal region and supraclavicular fossæ, (2) the presence of cyanosis, (3) a rising pulse rate due to the strain of respiratory obstruction, (4) diminishing breath sounds on auscultation of the chest and (5) vertical movements of the larynx with phases of respiration.

No case is too late for tracheotomy from the severity of suction alone. It is gratifying to see even cases whose lower ribs are drawn in severely with each inspiration make an uneventful recovery after tracheotomy. Such experience is not uncommon in those who work in the Diphtheria Ward.

While advising tracheotomy one must be careful to assess that the dyspnœa is not cardiac in origin or due to bronchopenumonia. This differentiation is not difficult.

Treatment of Complications

(1) *Bronchopneumonia*—It is treated with injections of penicillin or by sulpha group of drugs and by oxygen inhalations. It is a common complication after tracheotomy. It is usual for secondary bronchopneumonia in diphtheria to respond slowly to treatment.

(2) *Peripheral Circulatory Failure*—This is a dreaded complication and is often fatal.

To maintain the circulatory blood volume, slow intravenous injection of 100 c.c of 25 per cent glucose is recommended. Strychnine sulphate 1/60 grain hypodermically every 4-hrs. and intramuscular injection of desoxycortiocosterone 2 mgm. every 4-hrs. are useful. The feet may be bandaged and the foot-end of the bed is raised.

Adrenalin hydrochloride (1:1000) solution, 2 minims, caffeine soda benzoas 2 grains intramuscularly may be tried but usually are not of much value. Oxygen through a nasal catheter or B.L.B. mask or through a tent may be used but its efficacy in the cyanosis of peripheral circulatory failure is very limited. Slow blood transfusion was recommended by Pugh and Williams (1941) and may be valuable but is hardly possible in private practice.

When heart block is present due to involvement of the myocardium, injections of atropine sulphate 1/500 grain hypodermically and ephedrine hydrochlor 1/8 grain with adrenalin hydrochloride solution (1:1000) 2 minims are indicated.

Restlessness associated with cardiovascular complications may have to be alleviated by sedatives. When unprovoked vomiting heralds cardiac complications as it often does, there is no better sedative than morphine, 1/32 grain for a child aged 3 years.

(3) *Tympanitis*—Small injection of pituitrin or pitressin (2 units) and a flatus tube will usually relieve distension. Suitable alteration in the diet may have to be made.

(4) *Neurological complications*—In palatal paralysis the child has difficulty in swallowing thin liquids and dry solids. Semi-liquid food and thickened liquid food are swallowed more easily.

If pharyngeal paralysis is severe the child may have to be fed through a nasal tube and the foot-end of the bed has to be raised to prevent aspiration bronchopneumonia.

When respiration is embarrassed by diaphragmatic paralysis it may be necessary to put the child into a Drinker's apparatus for prolonged artificial respiration.

In cases of generalised polyneuritis, gentle massage is recommended in the later stages to hasten recovery.

In all varieties of postdiphtheritic paralysis those who have not had serum during the active stages of the disease and who come within two weeks of the original attack may be given 16,000 units of antitoxin intramuscularly. Usually the toxin is fixed to the tissues in a late case and antitoxin is unable to act. Strychnine 1/60 grain daily should be prescribed and vitamin B_1 may be given.

The child should have rest in bed during the paralysis. In a mild palatal paralysis stationary for over 7 days the child may be allowed to sit up in bed.

Treatment of Carriers—Nasal carriers should have 1 c.c. of penicillin solution (1000 units per c.c.) for nasal instillation every 2 hours during the waking period.

All varieties of convalescent and chronic carriers should have parenteral penicillin in the usual dosage for 5 to 12 days. Buffered procaine penicillin, 4 lakh units a day may be used instead.

If the tonsils and adenoids are unhealthy in a persistent carrier, their removal is advisable.

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PRACTITIONERS' CORNER

UNILATERAL EXOPHTHALMOS—ITS ETIOLOGY WITH SPECIAL REFERENCE TO MALIGNANT GROWTHS

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Exophthalmos is noted for its relative frequency, its menace to vision and for the fact that it is often an indication of a threat to life itself.

Exophthalmos is caused either by the fact that the contents of the orbit increase in volume or that the capacity of the orbit itself is decreased. The former is by far the most frequent. It may also arise due to relaxation of the tone of the recti muscles which draw the eyeball backwards. That is in the case of paralysis or in tenotomy.

The result of exophthalmos of light degree is damaging. The more the eye grows forward the more does it press the lids apart. The widening of the fissure leads to lagophthalmos. Keratitis occurs, eversion of the lid develops, mobility of the eye decreases, vision is influenced in various ways. Vision may be destroyed by keratitis or diseases of the optic nerve. In the early stage, the optic nerve is stretched, and nerve fibres often accommodate themselves to the tension in a wonderful way—vision is maintained. When exophthalmos increases rapidly the nerve loses its power of conduction due to tenseness.

The causes of exophthalmos are:—

(1) Retention cyst of paranasal sinus; (2) Granuloma of orbit (pseudo-tumour); (3) Meningioma—benign tumour arising in cell clusters of arachnoid; (4) Craniostenosis (tower skull, oxycephaly, premature suture synostosis); (5) Hyperthyroidism; (6) Cavernous hemangioma; (7) Oculomotor paralysis; (8) Dermoid cyst orbit; (9) Sarcoma; (10) Neurofibromatosis; (11) Orbital deformity; (12) Glioma of optic nerve and chiasma; (13) Arteriovenous aneurysm; (14) Malignancy of paranasal sinus and larynx; (15) Mixed tumour of lacrimal gland; (16) Saccular aneurysm of int. carotid artery; (17) Abscess of orbit; (18) Ethmo-orbital osteoma; (19) Paget's disease; (20) Basal celled carcinoma; (21) Neuroma; (22) Unilateral myopia; (23) Gumma; (24) Xanthomatosis; (25) Blood cyst of orbit; (26) Congenital coloboma (cyst of eyeball); (27) Myeloma; (28) Trichinosis; (29) Osteitis fibrosa cystica; (30) Subdural haemorrhage; (31) Idiopathic.

A review of 100 cases of unilateral proptosis that came under our treatment in hospital and outside shows that the commonest cause in the province of U.P. is panophthalmitis with its general complications and this accounts for 50 per cent of the cases. The second commonest cause is malignant growth, which is all the more important as it endangers life.

Glioma of retina accounts for 20 per cent cases of unilateral exophthalmos and sarcoma arising most frequently from the periosteum, from the lacrimal gland, muscles and from the optic nerve 10 per cent. It grows rapidly, presses upon the eyeball which is later destroyed by its inflammation. Tumour fills the entire orbit and bulges out of the orbit as a bleeding mass. Lymph glands swell. The tumour extends into the bones and in adjoining structures, especially to the brain, and in this way or through metastasis leads to death.

Primary carcinoma is very rare. It can proceed only from lacrimal gland but extension from neghbouring sinuses is not uncommon.

In America the commonest causes are retention cyst of paranasal sinus and malignant growth. 10 per cent of exophthalmos are associated with cancer and 6 per cent primary intra-orbital malignant neoplasm.

The fact that panophthalmitis and its complications account for 50 per cent cases in the province of U.P. is not strange, as cases of untreated injury and ulcers of cornea are commoner in our country than in America.

I would like to illustrate with records a case which was under my treatment only recently and proved a problem.

CASE REPORT

S. Singh, aged 47 years, came with complaints of (1) Protrusion of right eye—1½ months, (2) Diminution of vision—7 days.

History of Present illness—For the last 6-8 months the patient used to have pain and swelling in the upper part of the right forearm. This swelling used to subside of itself. He also used to have some swelling in the skull which used to appear and disappear. For the last 2-3 months the patient has been spitting blood occasionally.

For the last 1½ months or so the patient while washing his face in the morning noticed that his right eyeball appeared more prominent. First this prominence was in the upper part and there was no disturbance in the vision. But for the last few days it has increased all the more and it has started growing from under the eyeball. The pain has also increased gradually; there was no diminution of vision but for the last 7 days the vision is also diminished. Movements in R.E. are not possible.

Since one month from now he is having a painful lump in the left thigh and also pain in the left thigh.

Present Condition on Examination	*Right eye*	*Left eye*
Lids	Swelling only. Cover the the eye ball partially.	Normal
Conjunctiva	Congested and the lower fornix is protruding out beyond the palpebral margin. It is œdematous.	Normal
Cornea	Hazy and is shrinking.	Clear
Chamber	Cannot be seen.	Normal
Iris and pupil	Cannot be well examined.	Normal
Vision	2/60 on admission but it is nil now.	6/9
Fundus	Cannot be seen.	Normal
Tension	Cannot be taken.	Normal

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Investigations—(1) Total W.B.C. count—13,000 cmm. Differential count: Poly—90 per cent, Lympho—10 per cent, Eosino—Nil; (2) W.R.—positive; (3) Urine—sp. gr. 1020; albumin in trace, stray R.B.C., triple phosphate crystals; (4) Stool—Well formed and brown; few pus cells and R.B.C.; (5) Sputum—No acid-fast bacilli; (6) Field of vision (on admission)—Normal.

X-ray Report—Right frontal sinuses hazy. Maxillary antra clear. No abnormality detected in large bowels. Suggestion of secondary deposits present in the head and the contiguous part of the shaft of radius. Femur clear. The right orbital cavity is radio-paque. Lung fields present metastatic deposits. Both the kidneys are functioning and appear normal in size and shape.

ENT Surgeon's Report—The right inferior turbinate hypertrophied. Sinuses seem to be clear. Biopsy from metastasis in bone—one small piece of tissue removed and sectioned.

Section shows strands of bone trabeculæ infiltrated irregularly by dark staining groups of cells. These groups are of variable size and consist of small cells with darkstaining nuclei and practically no cytoplasm. There is no particular arrangement about these cells. No opinion is possible.

It is suggested that the eye may be enucleated and sent for histological examination.

Physician's Report—Hard mass in abdomen. Rectal examination shows ballooning of lower rectum. There are signs in both lungs and long bones for new growth. Suggested barium enema and later sigmoidoscopy.

Discussion—There was conjunctival chemosis with congestion of veins which appeared within a week of admission. Patient lost 2/60 vision. Cornea got sloughed and the whole eye became a large swollen mass bleeding on touch. Day to day proptosis went on increasing.

The question in this case arises as to the nature of growth and its primary site. No lesion was found in the kidney; Adrenal or prostrate to account for the secondary deposits in different parts as bone of forearm, lungs and right orbit. The skiagram clearly indicated that there is osteogenetic activity in the right orbital bones. Metastasis in orbital bones is rare.

Is the growth of the nature of sarcoma periosteum or carcinoma (primary cancer of lacrymal gland though rare does occur)? But here a swelling first appeared in forearm in the radius, was it the site of primary growth?

This is a peculiar case where we could not reach any conclusions regarding the primary site of lesion.

SPECIAL ARTICLE

THE ROLE OF THE MEDICAL PRACTITIONER IN HEALTH SERVICES*

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I do not want the title of this paper to be misunderstood. By health services I mean the service rendered to the sick in general but not the service offered by the state employees only.

In choosing the subject of this paper I had one thing in mind and that is the importance of the practitioners in contributing not only to the improvement in the general standard of health, but instilling in the minds of their clientele, the necessity of observing the principles of hygiene to prevent illness or spread of disease.

Before dealing with the responsibilities of the general practitioners in this country, I may give a brief account of health services in England so that you may have an idea how backward we are in this respect. Every country has its own scheme to provide necessary medical aid for its people; but a general idea of the health services in one of the more advanced countries will indicate the magnitude of the whole problem.

The system that was prevalent before the new act came into force in July, 1948, comprised of

(1) Services given by general practitioners.
(2) Hospital services—voluntary and municipal.
(3) Nursing and midwifery services.
(4) Special services such as rehabilitation, blood transfusion, etc.
(5) Maternity and child welfare.
(6) School medical services.
(7) Industrial welfare services.
(8) Services in the control of infectious diseases.
(9) Services for the prevention of tuberculosis, etc.

I do not propose to deal at length with all these but touch on some of the relevant points.

(1) *General Practioners Service:* In the first category under this heading, medical officers are employed as whole-time officials on a small or no private practice. These are engaged in rendering service in public health, tuberculosis, maternity and

*From a speech delivered on the occasion of Annual Celebrations of the Bhimavaram Branch (under Andhra Provincial Branch, I.M.A.) on 9-7-49.

child welfare, industrial welfare, etc. This more or less corresponds to the salaried service in this country.

In the second category are included doctors who are engaged in private practice but undertake certain amount of work under the national health insurance scheme, *i.e.*, treatment of insured patients at their own homes or at the medical officers' consulting rooms, by prescribing medicines, rendering minor surgical aid, and insuring medical certificates all free of charge. For attending on these patients he gets a minimum fee for each patient per year but the number of patients is restricted to 2,500; if the medical officer has an assistant it is restricted to 4,000. The insured persons can choose any of the panel doctors whose list has not reached the prescribed limit.

On the same lines, a few doctors work under the British Medical Association and friendly or mutual aid society.

Most of the practitioners come under the second category and they have an established income which is supplemented by private practice. The persons entitled for getting treatment under the panel system are those whose income is less than £ 420 per year.

(2) *Hospital Services:* Voluntary hospitals—The maintenance of these hospitals is met from voluntary subscriptions, donations, etc. A number of hospitals (1,200) including many of the largest, come under this category. The medical officers are those of repute and work without payment. Patients are admitted into these hospitals on a doctor's recommendation, either free of charge or on payment of fees proportionate to their income. Some hospitals have private wards for paying patients.

Besides the voluntary hospitals there are municipal hospitals providing 2/3 of the hospital accommodation of the country. The work in these hospitals is done by resident salaried staff and in some there are visiting consultants.

(3) *Nurses and Midwives:* These are engaged in hospital work, public health work, private nursing or in some specialised service. The ratio of the nurses and midwives to the population works at 4·04 per thousand.

(4) *Special Services:* (*a*) Besides the above services, there are special services for rehabilitation and blood transfusion which came into prominence during the last war.

(*b*) Medico-social work—This is of recent development. A number of hospitals, both voluntary and municipal have social workers (almoners) whose main function is to correlate the treatment in the hospital with the social status and domestic life of the patient. Bearing in mind that certain types of illness have a relation with the economic condition of the patient, his mental state, etc. the social workers will try to relieve him of his anxiety and help him during his illness and convalescence. The medico-social work is still in its infancy and when it is well organised it helps the patient to recover rapidly from his illness. This is particularly helpful in psychiatric clinics.

(5) *Maternity and Infant Welfare:* This service provides (1) Welfare centres where mothers can obtain ante- and post-natal care and children receive dental, orthopædic, ophthalmic and sunlight treatment, etc. In some of these centres fruit juice, cod-liver oil, vitamin tablets and dried milk are provided for expectant mothers and infants. (2) Health visitors give advice to mothers in their homes on such matters as breast feeding, general care of the baby and management of the child till it reaches the fifth year. (3) Day nurseries—These take up the children upto five years of age when the women are engaged in work in industries and factories.

Besides these, under the maternity and child welfare, there are organisations for maternity care and post-natal care.

(6) *School Medical Service:* It consists of periodic inspection of school-going children and treatment of minor ailments, defects in vision, hearing, etc. Provision is also made for specialist treatment for diseases of the ear , nose and throat, diseases of the eye and for orthopædic and dental treatment. This service was developed in such a way that every child, attending school, gets the best possible individual attention either to correct his defect or train him up in such a way that he might become a useful citizen of the country.

(7) *Industrial Welfare Service:* The state has provided for the necessary care of those working in industries. It is obligatory on the part of the administration of any industry to make the conditions in the industry sufficiently congenial for the maintenance of the health of the workers by providing adequate space for light, ventilation, etc. Medical examination of the recruits is made having in view their school record as regards their health and the workers are provided with necessary medical aid. By legislation the state has imposed restrictions as regards age and sex in certain industries, *e.g.*, women and young persons under 16 years are not permitted to be employed in industries such as coal mines.

(8) *Control of Infectious Diseases:* The measures taken for the prevention and control of infectious diseases comprise of notification, isolation, disinfection, supervision of contacts and vaccination and immunisation.

Compulsory notification enables the local authorities to take necessary action to prevent the spread of infection by isolation of the patients in special hospitals, by providing disinfecting stations where disinfection of articles is done free of charge; by arranging for cleansing and disinfection of the premises and destruction of contaminated articles that should be destroyed.

An important measure in the prevention of spread of the disease is to take special care of the contacts till the period of infection is over.

It is universally recognised that vaccination and immunisation are essential to prevent diseases like small-pox and diphtheria.

(9) *Treatment of Socially Significant Diseases:* Certain diseases of insidious onset are likely to affect

the society besides crippling the patient himself. Pulmonary tuberculosis is one of them. As a measure for early diagnosis of the disease, mass radiography proved to be very useful and those with active lesion are given adequate treatment. It was found in England that among the 1,700,000 examined upto the end of June, 1947, 0·4 per cent showed active lesion. Diagnosis and early treatment of the patients afflicted with the disease is one of the important measures in controlling the disease.

Venereal Disease—Special centres are provided where patients are examined in privacy and treatment given free of charge. The contacts of patients are advised to undergo necessary examination and treatment.

Besides the above, provision is made for the treatment of persons with mental disorders and deficiency and for the treatment of cripples, and persons who are blind, deaf or dumb.

The Health Services are so organised that every individual is considered as an important member of the state and given necessary treatment when he falls ill, both in the interests of the individual and the community at large. The responsibility for such organisation is mainly taken by the state by necessary legislation.

The brief account I had so far given refers to the measures taken before the National Health Service Act of 1946 was inaugurated in July, 1948. The new act which is in force for the last one year aims at a scheme by which every citizen, whatever his occupation and status in life may be, gets consultation and treatment free of charge. In the words of the Minister of Health in the House of Commons during the second reading of the act one of its "first merits is that it provides a universal health service, without any insurance qualifications of any sort. It is available to the whole population, and not only is it available to the whole population freely but it is intended, through the health services, to generalise the best health advice and treatment. It is intended that there shall be no limitation on the kind of asistance given, the general practitioner service, the specialist, the hospitals, eye treatment, spectacles, dental treatment, hearing facilities, all these are to be made available free."

The important features of the new Act are detailed below:

(1) *General Practitioners Service:* The distribution of the practitioners is undertaken by special medical practices committee, so that it may be evenly spread out throughout the whole country. The practitioners can work either at their own consulting rooms or at health centres to be established. At these health centres there will be provision for dentists and opticians who work on a whole-time or a part-time basis. In this scheme, drugs and appliances are supplied free of charge by pharmacists who are enrolled in the new service. Thus the practitioner is ensured of a definite income and the patient of free consultation and treatment.

(2) *Hospital and Specialist Service:* This is controlled by regional boards which are directly responsible to the ministry of health and under whose control, the managing committees of different hospitals or groups of hospitals work. Thus there is a co-ordination between the various hospitals. All the hospitals excepting teaching hospitals come under the control of these boards. The treatment in these hospitals is free of charge, although in certain hospitals there may be a few paying beds or paying blocks. Under the hospital and specialist services are included hospitals for general and specialist treatment, tuberculosis sanitaria, maternity hospitals, infectious disease units, convalescent and rehabilitation centres, etc.

(3) *Local Government Services* are directed towards maternity and infant welfare, child life protection, midwifery, health visiting; home nursing, immunisation and vaccination; the care of mental patients outside the hospitals and institutions; ambulance services; after care and prevention of illness.

Let us just compare the scheme in England with the state of things in our country. The general practitioners service renders medical aid for a minute fraction of the population. The hospital and specialist service is mainly taken up by the Government, although there are a few hospitals run from endowments and private donations. The number of beds is not at all adequate even for those who desire to have proper medical aid.

As you are aware, a number of patients, for one reason or other do not seek institutional treatment and even if they do, some of them come to the hospitals in such an advanced condition of the disease that nothing can be done.

No doubt there are public health services run by the Government and although they are functioning to some extent, their inadequacy is too apparent. As regards such services as maternity and infant welfare, rehabilitation, care of school children, care of the mentally deficient and cripples, etc. there is nothing worth the mention.

For several reasons well known to every one, the health services have not progressed sufficiently in this country and in the present set up it may take a number of years before anything reasonable can be attained to maintain a proper standard of health.

A few statistics will not be out of place to show how inadequate is the medical aid in this country.

The following comparative statement shows the proportion between Doctors, Nurses, etc. and the present population in this country as compared with that in the United Kingdom.

	In this country	*In United Kingdom.*
Doctors	1 for 6300 persons	1 for 1000 persons
Nurses	" " 43,000 "	" " 300 "
Heath Visitors	" " 400,000 "	" " 4770 "
Midwives	" " 60,000 "	" " 618 "
Qualified Pharmacists	" " 4,000,000 "	" " 3000 "
" Dentists	" " 300,000 "	" " 2700 "

There may be a certain fallacy, as, when mention is made of doctors, it is only the practitioners of modern medicine (allopathic) that are taken into consideration but not the registered practitioners under the other systems.

Most of the practitioners tend to remain in urban areas as a result of which, in villages, where three to four times the population in cities stay, the medical aid is much worse.

When hospital accommodation in India is compared with other countries it shows that in this country there is provision of one bed for 4,000 persons whereas in England and Wales there are 7·14 beds per 1,000 population and in U.S.A. 10·48 beds per 1,000 population.

This inadequacy of medical aid is reflected on the mortality of adults and infants, expectation of life and maternal mortality.

Per thousand	*India*	*England and Wales.*
Death rate ..	22·4	12·4
Infant mortality ..	162	58
Expectation of life at birth ..	26·91	58·74
Deaths under one year	24·3	6·8
Deaths from 1- 5 years	18·6	2·1
Deaths from 1-10 years	5·5	1·1
Maternity mortality ..	20	

From the above figures it will be seen how much has to be done to improve the conditions in this country to prevent sickness.

I am of opinion, that even under the existing condition something useful can be done if there is co-ordination between the general practitioners service and the hospital service. The general practitioner has an important role to play as he comes into contact with the patients in their homes and knows the environmental condition. He, as a family doctor can easily gain the the confidence of not only the patient but his close relatives. On him rests not only the health of the individual patients but the prevention of any communicable disease to the rest of the family, the care of the expectant mother, the care of the infant and the growing child.

In more advanced countries from the time a woman becomes pregnant she receives all the attention till the infant is born, and even after. Facilities are provided by the state for the care of the infant till it grows to the age of five; subsequently when the child goes to school, the health service at the school takes care of him. So at every stage in the life of an individual the state has taken care to provide necessary facilities for the maintenance of health and prevention of disease.

In the absence of such organised services, the responsibility devolves on the practitioner. In other words, all the services such as maternity and infant welfare, school medical service, service in the control of infectious disease, and medico-social service, are included in the general practitioners service.

Let me dwell on these things in greater detail. When a patient seeks his advice the practitioner has to study the whole person to see the effect of environment on his health, his mental state and finally try to find out the pathological lesion in the body. During and after the treatment he should help the patient to get over the effects of the environment and follow the case till he is completely recovered and even after. Here he will not only treat the patient for his ailment but render such medico-social work as is necessary.

When a general practitioner treats a communicable disease, *e.g.*, tuberculosis, his aim should be to prevent the rest of the family from getting infected. He has to fight considerable ignorance and sentiment on the part of those that attend on the patient and it is not an easy task to impress on the patient's relatives the necessity to observe certain preventive measures but the practitioner will have to try and educate them as far as possible.

Taking the question of maternity and infant welfare, the general practitioner has to take considerable responsibility. He is responsible for the antenatal and post-natal care, watching for early symptoms of any toxæmias. If the infant is born with any deformity, *e.g.*, talipes, it will be the duty of the practitioner to get it attended to. He will have to give necessary instructions for the proper feeding of the baby. The attention that is paid to the child till it grows to the age of five by the health services in other countries will have to be given by the doctor that conducts the labour. It means he should have a trained midwife who will also take up the duties of a health visitor.

When the child begins to go to school, the practitioner will have to note the defects in the child, *e.g.*, defective vision and try to either correct the defects himself or advise the parents of the child to consult a specialist.

Taking up the question of rehabilitation, the practitioner has to use considerable skill to see that the normal function is restored. For example, in a case of Colles' fracture, it is common observation that the average patient requires considerable persuasion to move his fingers. The practitioner should not satisfy himself by setting a fracture correctly but he should see that the full function of the limb is restored.

I am fully aware of the limitations of the average busy practitioner and the difficulties that he has to face if he has to take up the duties of a practitioner, a health visitor, a social worker, a health officer, and a midwife, all blended into one; but if every practitioner realises the necessity to do his best in respect of all the different types of service and does as much as possible he will justify his position as a general practitioner.

Co-operation between Practitioners

It is commonly said that no two doctors agree but a close co-operation between those practising in a

particular place, will go a long way, in not only raising the general standard of medical aid but also in improving their own knowledge. Every general practitioner should have a speciality, *e.g.*, Surgery, E.N.T. Ophthalmology, Orthopædics, Midwifery, etc. As things stand to-day, where it is not possible for people to go to distant hospitals with specialities, the practice in a speciality besides general practice will make the practitioner more useful. It will be much easier for general practitioners to co-operate when each one of them specialises in one branch of medicine.

Clinics—I am glad to note that some of the graduates from the Andhra Medical College have started joint clinics. Here again, a physician, a surgeon, an obstetrician and gynæcologist can all join together and form a team so that their clinic may form a small hospital.

Co-ordination of Work between General Practitioners Service and Hospital and Specialist Services

It is not within the scope of the general practitioner with the available facilities, to do justice to every case. Certain cases have to be referred to hospitals where facilities exist for special examinations like biochemical, bacteriological, etc. The practitioner will have to use considerable discrimination in advising patients to go to hospitals. He must satisfy himself in the first instance that everything possible has been done by him and that the patient is likely to improve by referring him to a hospital. Sometimes patients with advanced disease, *e.g.*, cancer, are directed to go to hospitals; but they will have to return home either with inadequate or no treatment. This not only causes considerable inconvenience to the patients but spoils the morale. It would be better to be more candid and explain to the patient that the disease is too far advanced for any treatment. Our patients are not sufficiently educated and one has to exercise considerable patience and tact in making them understand the real state of things and it is our duty, as far as it rests within our capacity, to educate the people.

One difficulty that is always experienced is the follow up of cases. We have to depend on the reports from other countries to evaluate the efficacy of a particular treatment. A practitioner is in a better position to follow up cases, not only those treated by him but also those that are referred to hospitals and sent back to him. It means the maintenance of proper records of at least the important cases with all the investigations for future reference.

Co-ordination between the General Practitioners Service and Public Health Services

Department of public health is of recent origin in this country. In the meaintenance of health there is much to be done by way of prevention of disease. Public health aims at the safety of the whole community, and it is incumbent on every practitioner to give the greatest co-operation to the public health department. The standard of work in this department has to be considerably raised and the state looks forward to every citizen, particularly the doctors to give all possible help. It is the duty of the practitioner to notify an infectious disease, to isolate a patient suffering from communicable disease, even in the home and to take necessary steps so as to prevent the spread of the disease in the family.

Much can be done in this direction by educating the public. Every practitioner commands respect in the place where he practices. He is generally a member of the local club and probably of some societies organised for social work. Either by way of short talks or by films it will be possible for the practitioner to educate the public as regards some of the diseases, how to prevent them, and how to lead a healthy life. At the present moment, the average person is misinformed about so many technical things by seeing the advertisements. He acquires a wrong idea and at times offers suggestions to the practitioner placing him in an embarrassed position; but the practitioner should have the tact not to be persuaded by him. Remedies like sulpha drugs are often absued. Fortunately penicillin and streptomycin cannot be used by the public without the help of the doctor. When M. & B. 693 was first found to be a useful drug in the treatment of gonorrhœa, the half educated persons used to swallow a few tablets and live in an atmosphere of contentment when the first symptoms subsided, only to suffer later on, the effects of incomplete treatment. Everyone appears to know something of medicine—at least a few remedies. It should be our endeavour to disillusion them of this false motion and prevent them from suffering from the effects of self-medication.

Medical ethics is below par in this country. To keep our profession in high regard, every practitioner will have to try and maintain a high standard in this direction. There are ever so many unauthorised practitioners in the shape of compounders, etc. Let us hope that before long necessary legislation will be passed to root out this undesirable practice.

One of the difficulties that the practitioner is faced with, is to overcome the temptation of yielding to the patients when he expresses a desire to have a particular injection or a particular line of treatment. No doubt the patient may be in a position by his previous experience to inform the doctor about his reaction to a particular drug and this information may be useful for the doctor to modify the line of treatment but the practitioner should not be carried away by the fancy of the patient but should decide for himself whether the treatment suggested by the patient will be in his best interests. The second difficulty is to make the patient undergo the full course of treatment. After obtaining some relief, the patient tends to discontinue the treatment either on account of a false notion that he is cured or on account of his inability

to pay the doctor any further. Sometimes such incomplete treatment will react in an adverse way on the patient's health, *e.g.*, treatment for syphilis with a few injections of N.A.B. or stricture urethra with a few dilatations. A certain standard of treatment is prescribed in such cases and it is incumbent on the practitioner to persuade the patient to undergo the treatment completely.

The modern practitioner has to diagnose a condition with greater precision than his predecessors. A microscope and a diagnostic set have become as inevitable as a stethoscope or a thermometer. Laboratories have become necessary adjuncts for correct diagnosis. It is very desirable that some practitioners, should start laboratories after adequate training. Routine bacteriological and biochemical examinations should be within the reach of every practitioner so that the treatment may be on a more scientific basis than mere empiricism. The examination of blood for sugar, urea, etc. besides culture of blood; the examination of urine for different types of organisms before deciding on the particular drug to be used, have become so very essential. The practitioner should try and maintain an academical standard as far as possible. This cannot be done in the absence of laboratory facilities.

The progress of science is so very rapid that it is not ordinarily possible for an average practitioner to keep himself up-to-date and if he wants to do justice to the profession he will have to take a periodical holiday from his practice and attend some clinics to acquaint himself with the latest developments. I do appreciate the difficulties of the practitioner. In the first instance he may not be in a position to spare the time or money to go away from his practice for a month or two. Secondly, he may lose some of his clientele by the time he returns with additional knowledge. Thirdly, there may not be much scope for putting into practice what he sees in bigger clinics. So there is a disinclination on the part of the practitioner to leave his station, even for a few weeks as he feels the advantage he gains by his absence is not commensurate with the time and money he spends for acquisition of fresh knowledge; but unless there is a periodic visit to post-graduate clinics there will not be any progress in science and the part a general practitioner plays in health services will not be effective: Let us hope that in course of time it will be to the advantage of the practitioner to attend the post-graduate clinics from time to time.

I was rather hesitant when I decided to speak on the responsibilities of the practitioner but in the present set up it is necessary to review the position of different health services and see how best these services can be co-ordinated and how the practitioner can play an important role in the co-ordination so that the standard of health of the whole nation may be considerably raised. It is not sufficient if an individual is cured of his ailment but it is our responsibility to see that he fits into his environment so that he may be a useful member of the whole nation.

CASE NOTE

AN INTERESTING CASE OF 'MONSTER'

A. PAL,
Naihati, West Bengal.

On 7-1-51, at 10 A.M., I was called to see a woman in labour, at full term and with history of dribbling of liquor amnii from the day before. She was aged 24, in her 3rd pregnancy, expecting to be confined in the first week of January '51. Her first pregnancy had ended in normal labour at term, the child still alive, aged 4 years. Second pregnancy ended in abortion at about 3 months. Examination showed an unusually enlarged abdomen, some fœtal parts felt to the mother's right, head not fixed, position L.O.A., sluggish uterine contractions with only slight pain. F.H.S. 140 p.m. in left lower quadrant. An internal examination showed cervix thinning but external os closed, head presenting but high up, no leakage of liquor amnii detected. Reassurance, rest in bed and sedatives tided over the fear of the patient and she passed that day quietly.

On 8-1-51 I again saw her in the morning. Uterine contractions were stronger and more frequent but still sluggish through overstretching of the uterus, due, I thought then, to hydramnios with, perhaps, twins. After some more rest and sedatives, I saw her again at 6 P.M. She was having good uterine contractions now and was safely confined at 7 P.M. of a single baby with the congenital abnormalities described below. The placenta and membranes were entire and intact. The baby died after one hour of life.

The baby had the following abnormalities some of which are evident in the photograph (*see* Plate II).

(1) Eyes—lids stuck together; (2) Jaws—two teeth in upper jaw; (3) Tongue—absent; (4) Hands—thumbs and little finger only present, other fingers absent—both sides; (5) Right foot—great toe absent; (6) Left foot—toes all absent; (7) Liver, gall bladder, intestines and even the placenta were all found just outside the abdominal wall and covered by a thin membrane (? peritoneum, ? membranes); (8) Sex organ—not developed and (9) Imperforate anus.

I request the readers to enlighten me if the fœtal anomaly could possibly be due to any parental cause.

(*Continued from page 301*)

vitamins may be a dominant factor in the causation of kala-azar.

With these observations, I think vitamin B may play the same role in the cure of kala-azar as does vitamin C in cases of asthma. The administration of vitamin C has not only decreased the incidence of asthma but is now forming a basic part in the treatment of asthma (vitamin C with ostocalcium) rather than the other antispasmodics. I highly feel that the time is not very far off when most of the treatments will be done by vitamins exclusively. Above all, vitamin therapy is free from toxic effects.

The result of vitamin B therapy in the treatment of kala-azar will be communicated later.—I am, etc.,

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SHOCK AND OBSTETRIC SHOCK

For some years past the term 'obstetric shock' has been used in a rather restricted sense in order to designate shock developing during or after child-birth. Our knowledge of the mechanism and the mode of occurrence of shock is still inadequate, but the fact, which has emerged out of the painstaking observations in recent years is that 'obstetric shock' is not a separate entity, but merely 'shock' in obstetric practice, differing from conditions of surgical and medical shock only in its environment and not in its nature. However, this change in view has not been accepted charitably by the obstetricians, for in a recent text book[1] the authors describe 'idiopathic or true obstetric shock' as a condition distinct from 'surgical shock' in obstetric practice. On careful scrutiny however even this so-called 'idiopathic' shock appears to be a doubtful entity, for Steiner and Lushbaugh[2] have shown that many of these cases are actually instances of pulmonary embolism caused by liquor amnii and vernix caseosa. More recently, Gross and Benz[3] described some more cases of a similar nature and these were characterised by a 'sudden unexpected development of irreversible shock'.

The confusion and controversy can be cleared to a great extent if one remembers that 'shock is a state involving the entire organism characterised by general impairment of circulation' with the 'reduction of the output of blood from the left ventricle to a level below that needed for normal cellular function and metabolism' (Davis[4]). With such a broader concept it becomes easier to understand the syndrome complex known as shock whether it be in medical, surgical or obstetric practice.

Of the recent contributions of outstanding interest on shock as seen by the obstetricians are those of Scott,[5] and Sheehan.[6] Both these authors stress on blood loss and trauma as important contributory factors. The recent paper by Mukherjee and De[7] in this journal also provides data in support of this view. Sheehan,[6] however singles out two conditions, *viz.*, prolonged labour and retained placenta. The danger of ketonæmia in prolonged labour is not often realised, although attention to this was drawn by Anderson[8] more than 15 years ago. The recent biochemical studies of Le Page[9] also show that shock is accompanied by a state of acidosis, probably of metabolic type, caused by the accumulation of anions in the tissue cells and resulting in a disturbance of the ionic equilibrium between the intracellular and extracellular fluids of the body.

The role of uncomplicated retained placenta in shock is difficult to assess in our country at present, for in such cases frequent and inefficient attempts of Credè's expression by people not qualified to perform this operation are the usual rule. Mukherjee and De's[7] study also suggests this. Even Sheehan's[6] patients 'had previously undergone unsuccessful attempts to express the placenta and it is . . . . difficult to assess how vigorous the attempts were'. Obstetric teaching in this country should emphasise, a little more than is usually done, the abuses and dangers of forcible and frequent attempts of Credè's expression of the placenta. This will materially reduce the incidence of third stage hæmorrhage and shock.

Oligæmia as a shock inducing agent in obstetric practice has a dual significance in India. Postpartum hæmorrhage is indeed a well recognised and well understood condition, but what is not often realised is that the administration of large doses of posterior pituitary extract, used with the object of stopping the hæmorrhage sometimes aggravates the shock caused by the blood loss. Shock causes vasoconstriction, posterior lobe extracts of pituitary aggravate it. Gesel[10] proposed the concept of 'nutrient flow' and postulated that in shock the transport of nutrient material and excretion of waste products are interfered with. If this conception is true, and the study of Page[11] suggests that this is so, then vasoconstriction caused by pituitary extracts should be carefully avoided in this type of cases. Ergometrin is a safer drug and clinical experience proves that it is so.

The second oligæmic factor, which is of great importance in our country is anæmia. About 50 per cent of the pregnant population are anæmic according to the international standard of blood hæmoglobin level during pregnancy. Anæmia predisposes to anoxia. A mild nociceptive impulse which would cause merely a protective vasoconstriction in a normal person, may, in an anæmic subject, give rise to the dangerous degree of anoxia, required to set in the irreversible changes in shock. The importance of anoxic states in the production of shock has been impressively told by Moon[12] and recently emphasised by Varangot.[13] The importance of this variety of oligæmic shock is that it is a wholly preventable condition if antenatal care is wider and more thorough.

When the nutritional status of the pregnant population of the country is taken into consideration it seems surprising that Mukherjee and De[7] should have

[1] Operative Obstetrics—Munrokerr & Moir, Baillière, London, 1950.
[2] *J. A. M. A.*, **117**:1245 & 1340, 1941.
[3] *Surg. Gyn. Obst.*, **85**:315, 1947.
[4] Shock and Allied forms of Circulation, Greene & Stralton, New York, 1949.
[5] *Brit. M. J.*, **2**:647, 1947.
[6] *Lancet*, **1**:1, 1948.
[7] *J. Indian M. A.*, **20**:241, 1951.
[8] *J. Obstet. & Gyn. Brit. Emp.*, **41**:261, 1934.
[9] *Am. J. Physiol.*, **147**:446, 1946.
[10] *Ibid.*, **47**:502, 1919.
[11] *Am. Heart. J.*, **38**:161, 1949.
[12] Shock and Related Capillary Phenomena, Oxford Univ. Press, 1938.
[13] *Presse Med.*, **1**:103, 1940.

observed the incidence of shock to be only 18·5 per thousand confinements. Much has been said in recent years about the lipotropic effect of some of the essential amino acids of the diet. Where the dietetic protein intake is less than 4·5 gm. nitrogen per day of which not more than 20 per cent are first class proteins the functional efficiency of the liver cannot be of a high order. To add to this are the effects of intestinal amœbiasis and helminthiasis. The role of the liver in irreversible shock has been shown in an experimental study by Frank, Seligman and Fine.[14] It will do good to all concerned and materially reduce the incidence of shock if those who are entrusted with the care of expectant mothers emphasise the importance of high protein diet (especially consisting of those of high biological value) during pregnancy.

The difficulty in understanding the mechanism involved in the production of shock and the continuous attempt by the obstetricians for the segregation of the term 'obstetric shock' lies in the lack of realisation of the fact that 'shock is as fundamental reaction as inflammation' (Green[15]). McDowall[16] has graphically described shock as occurring in two phases: vicious cycle I, and vicious cycle II. The former is a cycle of compensation with chances of recovery and interruption of the cycle if transfusion and antishock measures are employed. The latter is called by the author as the 'death cycle'. It has been shown both experimentally and clinically that if the systolic blood pressure in the artery falls below the critical level of 80 mm. Hg. and persists there for some time (Hill and McQueen[17]) irreversible changes occur and the 'death cycle' is introduced. These facts have important bearing in the understanding and management of shock, be it in obstetric, surgical or medical practice. The fundamental changes in progressive shock are cardio-acceleration, vasoconstriction, capillary stasis and tissue anoxia. Experimentally induced shock in animals show the presence of V.E.M. (vaso-excitor material) and V.D.M. (vasodepressor material) in the blood and certain tissues of the body (Shor *et al*[18]). During the compensatory phase (vicious cycle I) the V.E.M. is active. During the 'death cycle' the V.D.M. preponderates, causing peripheral vasodilatation and stasis, and giving rise to what Moon[12] described as 'circulatory bankruptcy'. The effect of this is mounting oxygen debt, fatal tissue anoxia and death.

The V.E.M. mechanism has been studied by Page (*loc. cit.*). This author has observed an intense, early and persistent vasoconstriction in the cutaneous and splanchnic area. But the amazing finding, which is recorded by this author, *viz.*, dilatation of the coronary vessels of the heart, is contrary to the usual belief. The exact chemical nature of the V.E.M. and V.D.M. are not known yet, but Page claims to have isolated a humoral vasoconstrictor agent (named by this author, serotonin), which is twice as active as adrenalin. Bielschowsky and Green's [19] M.S.F. (muscle shock factor), which has been identified as adenosine triphosphate (A.T.P.) may well be the V.D.M. operating at the irreversible stage of shock.

Much has been said in recent years on the role of the adrenal cortex in shock. The recent paper of Mukherjee and De[20] offers some proof for the existence of a state of adrenal insufficiency in the shock of obstetric practice. The evidences offered are however, not conclusive and do not clarify the existing confusion in the subject. These authors record the finding of adrenal cortical hæmorrhage and necrosis at autopsy studies in shock. Clinical conditions like Waterhouse-Friderischen's syndrome, which are associated with adrenal cortical hæmorrhage and degeneration, are indeed known to give rise to marked vasomotor collapse. But the similarity ends there. The latter condition is marked by the presence of cyanosis which is slight, if at all evident, in shock. Moreover, Ebert and Stead[21] have shown that the syndrome of Waterhouse and Friderischen is characterised by an absence of hæmoconcentration and pooling of blood, while in shock these constitute cardinal features in pathology. Sheehan[6] also described 12 cases of acute hæmorrhagic destruction of the suprarenal cortex, in none of whom symptoms suggestive of shock were present.

While the gross anatomical lesions found in the cortex of the adrenal glands in shock are contradictory, the biochemical findings are not so. Selye's[22] outstanding contribution on 'alarm reaction' and 'general adaptation syndrome', in which the adrenal cortex occupies the position of the hub of the wheel, suggests that the manifestations of shock are linked with a state of functional inefficiency of the suprarenal cortex. Like experimental adrenal cortical insufficiency shock is attended with a state of azotæmia and hyper-potassæmia (Scudder[23]). The recent findings of Mukherjee and De[20] are in agreement with this. Homs,[24] however, maintains that the importance of potassium as a chemical agent in shock, if any, is only at the terminal stage. Nevertheless, Wiggers[25] has demonstrated that in hæmorrhagic shock depression of the S-T complex occurs at the irreversible phase, and this electrocardiographic change is characteristic of potassium poisoning.

Thus, while there is reason to believe that a state of adrenal cortical insufficiency may exist in shock, the facts on which such a belief is based are not wholly conclusive. It is therefore wise to place one's reliance on transfusions and infusions in treating shock, rather than to depend on adrenal cortical hormone alone. In this connection the small number of cases presented by Mukherjee and De[20] is illuminating and their findings deserve confirmation in a larger series of cases.

[14] *J. Clin. Invest.*, **25**:22, 1946.
[15] *Brit. Med. Bull.*, **3**:102, 1945.
[16] *Ibid*, **1**:919, 1940.
[17] *Lancet*, **2**:65, 1921.
[18] *Science*, **102**:489, 1945.
[19] *Lancet*, **2**:153, 1943.
[20] *J. Indian M.A.*, **20**:275, 1951.
[21] *J. Clin. Invest.*, **20**:671, 1941.
[22] Stress, Acta Inc. Montreal, 1950.
[23] Shock—Blood Studies as a Guide to Therapy, Lippincott. Philadelphia, 1939.
[24] *Am. J. Physiol.*, **148**:499, 1947.
[25] *Am. Heart J.*, **33**:633, 1947.

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Watts, C. A. H.: Endogenous Depression in General Practice, Brit. M. J. 1:11-14, 1947

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CURRENT TOPICS

NUTRITIVE VALUE OF SYNTHETIC RICE

Dr. V. Subrahmaniam, Director of the Central Food Technological Research Institute, addressing a meeting of the Madras State Food Advisory Committee on 17th February, 1951 described how synthetic rice would help in solving the present food shortage without much expenditure of money and also explained its future possibilities.

Dr. Subrahmaniam said, from the point of nutritive value, facility of cooking, cost and keeping power, synthetic rice was as good as genuine rice.

He said that the nutritive value of various foodstuffs could be reproduced by suitable blending of their components, such as starch, sugar, fibre, proteins, fat, minerals and vitamins, etc., which were widely distributed in nature. Owing to the acute food shortage, there was now a strong case for a search for a cheap and plentiful source of the essential components. The starch required could be had from tubers like tapioca and sweet potatoes and the proteins from oil seed cakes especially groundnuts and different grasses, particularly the leguminous variety.

The nutritive value of tubers, particularly tapioca and sweet potato, Dr. Subrahmaniam said, could be much improved and even raised to a higher level than of grains by the incorporation of seed cakes, particularly, groundnut cake. The work done by the Food Technological Research Institute had shown that about 10 per cent of processed groundnut cake incorporated with tapioca or sweet potato flour along with calcium in suitable form was sufficient to produce an over-all nutritive value higher than that of rice. The technical problem resolved itself into one of proper blending of these components so as to produce a hard grain that would keep and cook in the same way as rice. He claimed that they had succeeded in achieving a blend which produced a product as hard as rice and could be cooked in the same way and with even greater ease and in a shorter time.

Method of Cooking

Explaining the method of cooking this product, Dr. Subrahmaniam said that the best way was to bring five parts of water to boiling point, drop one part of the product into it, preferably in instalments, so as not to interrupt the boil. The grains are stirred and sampled. The cooking would take about 8 minutes, or a third of the time taken by genuine rice. The gruel should be drained off and the cooked food served as rice or flavoured as savouries or sweets according to requirement.

Dr. Subrahmaniam said that the production of this synthetic rice could be organised either on a cottage industry basis or a factory basis. With a capital of about Rs. 7,000, a small equipment capable of producing about 3 to 5 cwts. per day could be set up. At a cost of about Rs. one lakh, improved types of equipment could be set up capable of producing 5 to 7 cwts. per day.

Generally, he said, tapioca was preferable to sweet potato in this connection since, it gave material of better colour, natural taste and easy adjustibility. Tapioca could also be grown on comparatively poor soil and the yield per acre ranged from 3 to 10 tons per acre. On an average, they could thereby raise at least three times as much dry food per acre in the form of tapioca as of other grains. In Travancore-Cochin, tapioca was selling at Rs. 60 to Rs. 120 per ton depending on season but in the right season Rs. 70 to Rs. 80, he said, would be a fair price. Approximately three tons of tuber would yield slightly over one ton of grain. Groundnut cake of the desired quality and the processing, etc., would add to the cost but eventually, he said, the finished product would not cost more than As. 2-8 to As. 3 per pound. With improvements in processing and production, the cost could be further reduced.

The advantages of such a processed food, Dr. Subrahmaniam said, were fairly obvious. "We can", he said, "produce at least three times as much food per acre as we are now able to obtain. If it is applied on a sufficiently large scale, the country will save huge sums of money which are now being spent for purchasing food from abroad."

Benefit to Consumer

Dr. Subrahmaniam said that at a meeting presided over by the Prime Minister at Jamshedpur, it was suggested by Dr. S. S. Bhatnagar that the production of synthetic rice should be first demonstrated in Travancore-Cochin, which was in a uniquely favourable position in this connection. The Government of the State also foresaw the possibilities and as a first step organised the demonstration of the process at the All-India Exhibition held recently at Trivandrum. The demonstration attracted wide attention and the Rajpramukh, the Ministers, and all who witnessed the process were impressed by the same. The Travancore-Cochin State at present produced an abundance of tubers and could produce a great deal more if there was an incentive for the production. By utilising a part of the production for synthetic rice, the consumer and grower would benefit, while large sums spent on purchase of grains would be saved. The progress of the undertaking in Travancore-Cochin would, therefore, be watched with great interest not only by the rest of India but also by other countries similarly placed in regard to foodgrains. Madras, Mysore and Hyderabad and Bombay could easily follow as they not only had the facility of growing tubers but also abundance of groundnut.

In conclusion, Dr. Surahmaniam said that the present development "owed its origin to the vision and enthusiasm of Sir S. V. Ramamurti". It was not too much to predict, Dr. Subrahmaniam added, that the synthetic product would in course of time become more attractive and more nutritious than any natural grain. The process now developed in India by Indians was now being freely given to the world; but it was fairly certain that hundreds of patents for improvements marked by well-known firms would follow in the years to come.

After the forenoon sitting, Sir S. V. Ramamurti treated the Ministers and the members of the Committe to a non-cereal lunch prepared out of synthetic rice. The items included 'sweet pongal', 'ven pongal', and 'puliyorai'. The dishes looked and tasted exactly like those prepared of ordinary rice.

Earlier, a statement on the food situation in the State explaining the procurement method and the progress of the intensive cultivation schemes was circulated to the mebers of the Committee.—*The Hindu.*

ANTIMALARIALS AND CARCENOGENS

Prof. L. F. Fieser, Professor of Chemistry, Harvard University, U.S.A., delivered a course of two lectures as Coochbehar Professor of the Indian Association for the Cultivation of Science for 1947 on January 13 and 15, 1951 at the premises of the Association in Calcutta.

The first lecture, on January 13, was devoted to Naphthoquinone antimalarials that have been developed by Prof. Fieser and his co-workers in the Chemical Laboratory of the Harvard University. After a brief historical survey on Dr. Hooker's and his own work on Lapachol and its derivatives (2-alkyl-3-hydroxy-1, 4-naphthoquinone), Dr. Fieser described how Lapinone, was synthesized and found to possess adequate potency and stability. Tested in human beings Lapinone showed promise as an agent against *Plasmodium vivax*. Ever since this discovery further search for more potent and effective antimalarial drugs of this class has been in progress.

In the second lecture of this series, on January 15, Prof. Fieser dealt with the cancer problem with special reference to the substances that cause cancer in the animal body. Preliminary researches that Dr. Fieser has already carried out in this concern have been quite promising, and further work based on several theories initiated by him is expected to clarify at least some features of the enigma of cancer.

Incidentally, it was interesting to note that Dr. Fieser has isolated, through a process of painstaking experiments, a structural isomer of cholesterol from the commercial products that were hitherto accepted as pure cholesterol.

Lastly, Prof. Fieser informed that he himself often performs his own laboratory experiments. This should be a deterrent to any who, having established themselves in the sphere of science, tend to develop a smug sense of superiority only to avoid bench work. —*Science & Culture*, **16**: 365, 1951.

LT. COL. AMIR CHAND'S ADDRESS AT LADY HARDINGE MEDICAL COLLEGE

In an address to students on the 35th foundation day of the Lady Hardinge Medical College, New Delhi, on 15th September, 1950, Lt.-Col. Amir Chand, Principal said:—

The whole of my life has been spent in the midst of youth and I have been all along both a student and a teacher. That might sound paradoxical and you might ask how that could be possible. The answer is simple. The best way to learn is to teach, and knowledge has no limits. In the early part of my life I was, like all of you, a student and I am confident that I must have stimulated my teachers, at least some of them, to learn more and more, and in that sense I acted as their teacher. Later on, when I became a teacher, my students taught me what I would not have learnt otherwise. They have been the most powerful stimulus for me to read as extensively as I could and to think out or hunt out the explanations of many a problem which otherwise I would not have bothered to probe in. Thus if I was their teacher they were in turn my teachers. To put it differently, they and myself were students with the only difference that we were at different stages on the same path of learning we were treading. A seeker after knowledge is a student till the end of his life. Although at present I have no teaching work to do—and that is what I miss most—I continue to be a student; and so, in a way, I am one of you.

According to the modern philosophy of education, a pupil is not a mere recipient of knowledge but is a reacting agent and, with the teacher, the predominant partner in the work of education. The idea that education can be imparted has been abandoned. Knowledge cannot be imbibed as a sponge imbibes water. While the teacher is a director of learning he stimulates and guides the pupil who learns largely by self-education. Do not try to learn too much; pick up the right methods and get to know with the guidance of your teachers how to study.

There are certain laws of learning the most important one of which is the law of interest. Learning is effective and efficient in proportion to the interest of the learner. Interest begets attention which leads us to the second law of learning, the law of attention, which demands complete concentration of the mind. Classifying students, Professor Gottlieb in Sinclair Lewis's 'Martin Arrowsmith' says: "There are two kinds of students that the gods give me. One kind they dump on me like a bushel of potatoes. I do not like potatoes, and the potatoes they do not ever seem to have great affection for me; but I take them and teach them to kill patients. The other kind they are very few: they seem for some reason which is not at all clear to me to wish a liddle (little) bit to become scientists, to work with bugs and make mistakes. These, ah! those I seize them, I denounce them. I teach them right away the ultimate lesson of science, which is to wait and doubt. Of the potatoes I demand nothing, of the foolish ones who think I could teach them something, I demand everything." I leave it to you to decide to which of these two categories you belong.

The other laws of learning are the law of association or thinking and the law of repetition or doing. 'Too many books, too much reading, too little thinking' is the usual practice in our educational institutions. That leads to failure in examinations and in life. We know why we are doing it. You must read and work not only diligently but also intelligently, making full

use of your brain all the time. Intellectual capacity, character and interest are the essential requisites for the study and practice of medicine.

The use of repetitions is a more economical method of learning than study for periods of excessive length. A proper distribution of work and rest period should be sought. Repetitions should be well distributed rather than numerous. The phenomenon of forgetting is greater during the first few days or weeks than subsequently. It is probable that repetitions, with progressively increasing intervals, are far more productive than the same number of repetitions at equal intervals. Repetition is the 'parent of learning'.

Make up your mind to be successful; having done that remember that the door to success is always labelled 'Push' and that the first essential for it is hard and honest work done with grit, determination and intelligence. You are here to be educated, but education does not mean poring over books or throwing facts into one's mind without utilising or testing them. It has been rightly said that hitherto in the multitude of education, education itself has been forgotten. Education is the development of the reasoning faculty in man. Education, in Osler's words, is nothing but a subtle slowly effected change due to the action upon us of the External, of the written record of the great minds of all ages, of the beautiful and harmonious surroundings of nature and of art, and of the lives, good or ill, of our fellows.

While you are being educated, pay full heed to the building of your character and this is the right place for that; for, a school or a college has been rightly defined as a sanctuary where there should be nothing that is base or unholy, it should be a factory for the making of character.

You are at a formative stage of life. Your judgment is immature because it is blended more with childish innocence than experience. You are likely to believe that this world is full of saints. Unfortunately it is not. So choose your company wisely with the guidance of those who possess mature judgment and ripe experience.

Once you have qualified yourselves do not desert the profession. If I be pardoned for stating a fact, the marriage market seems to attract women medical students and doctors more than the study and practice of medicine. There is a very great dearth of doctors, more so of women doctors, in our country and we cannot afford to let the work put in by them as students, the money spent on their education by their parents and the State, and the energy of their teachers go waste in the way in which they are going at present. So my advice to you is that while you are students keep your affections on ice and do not let the blind-bow-boy play the devil with you, and after qualification when you think of getting married ensure that marriage will not prevent you from practising. This is an extremely important point which I would like all of you to consider very seriously.

These are stray bits of advice that I have offered you. Singly they may be trifles, but trifles make perfection and perfection is no trifle.

NOTES AND NEWS

THE WORLD MEDICAL ASSOCIATION FIFTH GENERAL ASSEMBLY

The Swedish Medical Association will be host to the Fifth General Assembly of the World Medical Association when it convenes in Stockholm, Sweden, from 15th to 20th September, 1951.

The General Assembly will consider problems of medical education, both undergraduate and post-graduate; medical social security; and cooperation with inter-governmental organizations such as WHO and UNESCO. Tentative plans are also being made to devote at least half-a-day to a scientific programme, presenting papers relative to the most recent developments of medical science.

On 21st September, 1951, the World Medical Asssociation will sponsor a meeting of the medical editors of the world. A special programme is being arranged by some of the world's outstanding medical editors.

Further details relative to this meeting may be obtained from the Secretariat of The World Medical Association at 2, East 103rd Street, New York 29, New York—or from the Hony General Secretary, Indian Medical Association, Hanging Bridge, Faiz Bazar, Daryaganj, Delhi.

INDIAN DOCTOR ENTERTAINED IN EAST AFRICA

Col. Jaswant Singh, Director of the Indo-Malaria Institute, arrived at Nairobi, East Africa, in the last week of November, 1950 *en route* Kampala to attend the Malaria Conference of the World Health Organisation.

He was entertained by the Indian Medical Association, when Sir Charles Mortimer, former Health Member of Kenya, praised the work of Indian doctors in the African territories. The speaker also referred to the yeoman's service rendered by them in distant parts of Africa. He paid glowing tributes to Indian medical practitioners who had maintained very high ethical standards.

Dr. (Mrs.) Harris, wife of the Nairobi Mayor and President of the local British Medical Association, in the course of her speech referred to the high standard of research maintained by Indian practitioners in East Africa.

FIFTH INDIAN CONGRESS OF RADIOLOGY

The need of improving radiological service to the masses was stressed by Capt. M. Mukherjee, Calcutta, presiding at the 5th Indian Congress of Radiology at R. G. Kar Medical College, on 12th February, '51.

Dr. D. M. Bose, Director, Bose Institute, Calcutta, inagurated the conference. Prof. Satyendra Nath Basu opened the scientific exhibition.

Capt. Mukherjee in his presidential address, pointed out that radiological departments even of big

hospitals in our cities are very poorly equipped and staffed. He urged an extension of the benefit of X-ray examination to the mass of our people who live in the villages.

"Wider introduction of mass miniature radiography of the chest" Captain Mukherjee said, "is one of the methods for extending the special type of radiological service to our people. It is a very useful method for detection of incipient or latent cases of tuberculosis of the lungs in a community, at a cheap rate."

Pointing out that India lags far behind the western countries in medical radiology and in radiological industries, Capt. Mukherjee said that for improvement of radiology, we have to improve first and foremost the radiologist. We should set about to upgrade our radiological standard by starting immediately post-graduate diploma course of a high standard. A Central Institute, fitted with the latest instruments and manned by eminent professors in charge of the various departments should be established as early as possible to conduct real fundamental researches into the different problems of pure and applied radiology including medical, he concluded.—*Hindusthan Standard.*

12TH ALL-INDIA OPHTHALMOLOGICAL CONFERENCE, CALCUTTA

The 12th session of the All-India Ophthalmological Conference was inaugurated on the 1st of March, 1951 at the General Lecture Theatre of the Calcutta Medical College by Dr. B. C. Das Gupta, Director of Health Services, Government of West Bengal. Dr. M. N. Bose, Principal, R. G. Kar Medical College welcomed the members of the Conference as the Chairman of the Reception Committee and Dr. C. N. Shroff of Bombay presided. 150 eye specialists from all over India attended the Conference.

Welcoming the delegates and members of the Conference, Dr. M. N. Bose stressed on the present low state of public health in India and discussed some of the difficulties in tackling the preventive aspects of eye diseases, under the present conditions.

Dr. Bose suggested that arrangements should be made to impart a better type of training in ophthalmology to medical graduates and most of them should be settled in the rural areas preferably with the aid of the Government, either on a subsidy or on co-operative basis. He also suggested that the standard of the course of post-graduate training before appearing in a diploma examination in ophthalmology in different universities and examining bodies in India should be made uniform.

While inaugurating the Conference, Dr. B. C. Das Gupta stressed on the importance of the problem of prevention of blindness which has assumed serious proportions. He opined that blindness due to attack of infectious diseases can and should be reduced as has been successfully done in the western countries. In this connection he felt that there was inadequate co-ordination between the efforts of experts on the one hand and the general mass of practitioners on the other. Dr. Das Gupta thanked the universities which were paying adequate attention to ophthalmology so as to have a separate paper on it in the examination. He also spoke on the importance of properly tackling the problems of squint, defective colour vision, and training and welfare of the blind.

While delivering the presidential address, Dr. C. N. Shroff recalled that the last All-India Ophthalmological Conference held in Calcutta was in the year 1933. He felt sorry that eminent scientists like Sir J. C. Bose, Acharya P. C. Roy and an eminent Ophthalmic Suregon like Dr. S. K. Mukherjee of Calcutta were no more in this world.

Dr. Shroff said that India was a land of villages and the problem of prevention of blindness must be tackled from there. For the time being, he thought that with proper training in social work, the teachers of the primary and vernacular schools of the village could be made use of in tackling the vital problem. In this connection, he re-called that blindness due to eye diseases caused by smallpox, vitamin deficiencies (keratomalacia, xerosis, etc.), venereal diseases, granular conjunctivitis (trachoma), etc. was preventable. One of the formidable causes of blindness in India was smallpox. Immunity against smallpox was possible if first vaccination was systematically done between the second and the third month of infancy, and re-vaccination done at the age of 6 years, and later as required from time to time.

In conclusion, Dr. Shroff appealed to the industrialists, rich philanthropic gentlemen and the Government to allocate adequate funds for providing adequate facilities to the ophthalmologists so that they could tackle the problems of prevention of blindness and conduct scientific researches in ophthalmology.

LEPROSY ADVISORY BOARD

The Leprosy Advisory Board appointed by the Gandhi Memorial Trust held its two-day session at Sewagram (Wardha) on 24th and 25th February, 1951. The schemes considered by the Board include proposals for intensive and extensive study of the disease and training of medical and social workers to tackle the problem.

Dr. Jivraj Mehta was elected Chairman of the Board. A sub-committee is being set up to work out the details of the schemes which would be placed before the trustees for approval, it was learnt.

The question of organizing anti-leprosy work as one of the main activities of the Mahatma Gandhi Memorial Trust was also discussed.—*P.T.I.—Reuter.*

SEVENTH INTERNATIONAL HOSPITAL CONGRESS

The International Hospital Federation's VIIth International Hospital Congress, will be held in Brussels from July 15th to July 21st, 1951, of which the central theme will be the Care of the Chronic Sick and Aged. The principal addresses will be given by Dr. E. M. Bluestone, Director of the Montefiore Hospital, New York, and by Professor Pierre Delore of the Universitv of Lyons, France. 'Open Forum' discussions on all aspects of hospital problems will also be held.

All travel arrangements and hotel bookings for the Congress can be made through J. W. Kearsley & Co. at their new Head Office at Dorland House, 14, Regent Street, London, S.W.1, or through their correspondents and agents outside the United Kingdom.

NATIONAL GASTROENTEROLOGICAL ASSOCIATION, 1951 AWARD CONTEST

The National Gastroenterlogical Association has announced its Annual Cash Prize Award Contest for 1951. One hundred dollars and a Certificate of Merit will be given for the best unpublished contribution on Gastroenterology or allied subjects. Certificates will also be awarded to those physicians whose contributions will be deemed worthy.

Contestants must be members of a medical organization (like the I.M.A. in India. The award to the winning contribution will be made at the Annual Convention Banquet of the National Gastroenterological Association in September, 1951.

All enteries for the 1951 prize should be limited to 5,000 words, be typewritten in English, and submitted in five copies accompanied by an entry letter, and must be received not later than 1st June, 1951. Entries should be addressed to the National Gastroenterological Association, 1819 Broadway, New York 23, N.Y.

RESEARCH IN PHANTOM LIMB

The Australian Services Canteens Trust Fund have initiated special research in 'phantom' limbs, the overall research being designed to alleviate the sufferings of limbless war veterans. They will make effort to disocver a treatment to ease that peculiar pain suffered in 'phantom' limbs—limbs that no longer exist—and pains in the stump of the amputation. Research will also be made into nerve storms.

An endowment of Rs. 1,60,000 covering a period of three years, has been given for this project, and later the endowment may be extended.

Australia is perhaps the first country to create a special endowment for research into pains in 'phantom' limbs, a problem which is of world-wide importance.

BODY SET UP TO ENQUIRE GHEE ADULTERATION

The Government of India have appointed a committee to examine the extent of adulteration of ghee with vanaspati and other products and to suggest measures to eliminate or minimise such adulteration, the Food and Agriculture Ministry announced on 19th February.

Dr. B. J. Ambedkar, Law Minister, will be the chairman of the Committee. The other members are: Mr. M. Thirumala Rao, Deputy Minister for Food and Agriculture: Pandit Thakurdas Bhargava, M.P.: Mr. Prabhudayal Himatsingka, M.P.; Dr. P. C. Ghose; Dr. S. S. Bhatnagar; Dr. Patwardhan, Coonoor; Dr. B. Subrahmanyam of the Food Technological Research Institute, Mysore and Dr. N. N. Godbole, former professor of Chemistry, Banaras University.

Dr. D. V. Karmakar, Technical Adviser, Ministry of Food and Agriculture, will be secretary.

TUBERCULOSIS WORKERS' CONFERENCE

Dr. K. C. K. E. Raja, Director-General of Health Services and Chairman of the Tuberculosis Association of India, said in Hyderabad on 5th February that three tuberculosis training and demonstration centres were being established in New Delhi, Patna and Trivandrum.

Dr. Raja hoped that these centres, which would afford facilities for research in the epidemiology of the disease besides serving as clinics, would in due course help in assessing the tuberculosis problem in the country and working out a complete tuberculosis programme.

Dr. Raja, who was addressing the 8th Conference of Tuberculosis Workers, said, their target was to have at least one such centre in each important State. It was also proposed to extend the scheme to the rural areas ultimately, he added.

Dr. K. Vasudeva Rao, Deputy Surgeon-General with the Madras Government, who presided, emphasized the need for comprehensive and effective methods for the control of the disease. At least Rs. 800 crores would be needed to undertake an anti-tuberculosis scheme, including the house and nutrition aspects of the problem, he said.

X-RAY WING FOR BOMBAY HOSPITAL

The Seth Ramji Bhagawandas X-ray Department of the Sir Harkisondas Narottamdas Hospital was declared open on 17th February by Dr. M. D. D. Gilder, Minister for Health, Government of Bombay.

Dr. Gilder commended the services rendered by the Hospital to the citizens during the communal riots and said that though it was founded and run by a Hindu management, it never recognised any barriers of caste and religion. He appealed to the rich in the city to donate generously for the noble cause.—*Free Press Journal.*

CORRESPONDENCE

(The Editor is not responsible for any views expressed by contributors)

AN OPEN LETTER TO THE PROFESSION

SIR,—With the consolidation of independence I had the notion that Health of the people will receive more and more sane consideration of the people and the authorities. It is apparent to all of us now that it was only a pious thought. Whenever extra money is needed, either by the Centre or by the States it is medical budget that is cut bone dry.

Sometime ago I drew the attention of the members of the Indian Medical Association how the pendulum was swinging in favour of the indigenous system of medicine. At that time I was told my fears were unfounded and the scientific system of medicine will gain its ground more and more. But to-day most of my friends will agree that my fears were not unfounded.

What is wrong with scientific medicine in India to-day?

The first is that it is considered foreign to the soil and so must be ousted out. None of the other scientific achievements are considered such. Why? Because the indigenous system to-day is not only harping on the fact that they are the sole custodian of people's health, but they are more allied to the people, soil and the country. Certainly they are more organised than the scatter brain Indian Medical Association and no doubt they have the political backing. The reasons for the latter have been discussed threadbare by me and others on previous occasions.

Every medical man, apart from other reasons, has a duty to his society, people and country. I feel that although every reasonable medical man in the country realises this, he very seldom, rather never, puts his active effort, to put it right. That is what is most distressing and if this state of affairs is allowed to slide, we will harm the country to an extent from which it will never be able to recover.

The Indian Medical Association, the custodian of the Health of the people and interests of the profession, is a moribund academical body which very seldom wakes up. Why is it moribund—not because the people who are guiding it are incapable or indolent, but because *the whole of the profession is not only indolent, but uninterested in the matter.* It is now time that every one of the profession realised his or her responsibility in regard to the fast-deteriorating condition of the doctor and jeopardising state of the health of the people.

The Indian Medical Asociation in olden times had one objective—running down the I.M.S. Now that is killed and buried through the efforts of this body. Having won the battle,, they are resting on the oars and sitting back. That such an All-India Health Service is necessary, has now been realised by the very people who destroyed it, but that is another story and there is no sense digging up old memories specially when they are unpleasant.

The Indian Medical Association having destroyed that, there was hardly anything more for them and then slumbered.

The medical men of the country are not interested in the Indian Medical Association or the interest of the profession, or the interests of the people. They meet once a year where hardly any of these things are tackled. Some enthusiasts read a paper on some text book subject and the rest applaud them. Some make some wise cracks and then they all pat each other on the back and depart being fully satisfied with their achievements. At least that's what is my experience since I attended those meetings in the last two sessions. What have they done for the country, people or the profession?

Many medical men are not even members of this august body. Those who are, take no interest in the matter. Those who are at the top of the profession never take any interest in the body. Now-a-days all the specialists have their scientific meeting about the same time as the I.M.A. annual session. They consider themselves to be too high and mighty to belong to an association where any and every medical man can join. These specialists, instead of trying to strengthen the only body who can help the profession and the people, are seceding from the body gradually.

The net result is that I.M.A. is not only getting weaker and weaker, it is losing its representative voice and strength and often there is bickering among the top dogs.

The only means of strengthening the voice of the medical men is by joining the I.M.A. and making it a strong, visible body. Then only can the I.M.A. function as Medical Associations in other countries are functioning where they, more or less, rule the medical world. It is the only body which has the potentiality of guiding the medical destinies of the people and the country.

Time has come when the medical profession cannot be only spectators of destructive forces which are acting on the society. The profession must resist these forces. For this they must organise themselves, fight the battle and win it not for anybody's self interest, but for the welfare of the country and the people. I hope and pray that the profession will wake up to these facts and in the next meeting not only pious resolutions will be passed by a few, but carry the force of the voice of the profession, their demands for the welfare of the profession and their commands for the welfare of the people. We cannot achieve anything unless and until we organise ourselves into a strong body and in the interest of the greatest good of the country it is incumbent on all of us to make our presence felt and recommendations respected.

There must be propaganda and publicity of the urgency of scientific medicine for the benefit of the people and they must demand it. It is the duty of the I.M.A. to do this, to create public opinion in our favour as the people have the final voice. They must be made to realise the immeasurable harm and suffering that will be forced on the society if scientific medicine is neglected. In a democratic state we cannot ignore the voice of the people and to achieve anythiny we

must convince them so that they themselves would demand scientific medicine.—I am, etc.,

Simla-2. P. C. DUTTA, LT.-COLONEL,
11-10-50. Director, Health Services, Punjab.

SUGGESTIONS ON ACUTE APPENDICITIS

SIR,—In the *Journal of the Indian Medical Association*, October, 1950, the article, MODERN TREATMENT OF APPENDICITIS is a very interesting one. The author has taken considerable pains in bringing out such a useful article on such an important subject and tricky disease as appendicitis which according to the adage of Old Walsham in the last quarter of the 19th century 'is a trigger on a loaded gun which might explode and moment'. Appendicitis is a surgical disease, and as such should be treated on surgical principles. There are two methods of its treatment: (*a*) Immediate and (*b*) Delayed. Both the methods have their advocates. If these are followed explicitly in their real sense, chances of recovery are cent per cent, but if these are wrongly interpreted or abused, the mortality rate is enhanced. This disease has been fully studied and investigated. Its treatment is well-founded, based on pathological findings and is so perfect that it requires no more elucidation.

I am a retired man and right from my school days uptil now I never came across any such drug as 'Appendix Pill'. It will be harmful to use any medicine which may upset intestinal peristalsis. Even fractional doses of Calomel gr. 1/8 are absolutely contraindicated in such cases. This can be used after operation and during convalescence, if so desired. In the delayed treatment the very advantage of Ochsner-Sherren treatment for which it is meant will be defeated by administering this pill. Its very first rule is 'avoid every thing by mouth' and some even go so far as to restrict the amount of plain water by mouth.

Fluids are administered only either by venoclysis or proctoclysis.

With this basic principle it is not advantageous to prescribe the so-called appendix pill.

Acute appendix cases within first 24 hours have been administered such fractional doses for pain in abdomen on the plea of intestinal derangement with fatal consequences.

Lately, there has been an instance where a purgative was administered within 6 hours after the onset of abdominal pain, the patient developed fulminating peritonitis and though he was operated after 24 hours he succumbed to it. It has thus been a tragic case which has led me to put my fellow brethren on guard. Under the circumstances the question of anything which involves peristaltic movement of the bowels should be eradicated from the minds of the general practitioners, until such times when it is fully justified. I am just mentioning this as it may not mislead the profession and thus avoid the catastrophe which is likely to be thus invited. The surgical aspect of appendicitis is well-supplemented and enforced by the advent of antibiotics and chemotherapy which form the most reliable weapons in the armamentarium of the surgeon. —I am, etc.,

AHMED BAKHSH,
LT-COL., KHAN BAHADUR, O.B.E., I.S.O.,
Chief Surgeon and Supdt. Hamidia
Indore, C.I. Hospital, Bhopal (Retd.).
10th November, 1950.

NEUROTICAL ASTHMA

SIR,—Following several discussions at the O.S.R., we were wondering whether there is material available, from which conclusions may be drawn as to the occurrence of neurotical asthma in certain localities with respect to the character of the microflora and/or microclimate of these localities.

Is it possible that any of your readers may know about statistical research of this illness based upon the quality and quantity of microflora and/or microclimate? —I am, etc.,

G. BROERSMA,
General Secretary,
Organisation for Scientific Research.
Medan Merdeka Selatan 11,
Djakarta, February, 1951.

ROLE OF VITAMIN B IN THE CAUSATION AND SPREAD OF KALA-AZAR

SIR,—The analysis of 100 cases of kala-azar under my treatment shows that the diet factor is equally reponsible for the causation and spread of kala-azar as Leishman-Donovan bodies themselves. All these cases are rice-eaters and they take rice with pulses and not with fish or meat like Bengalis or Madrasis, who are also rice-eaters but they supplement deficiencies of rice with meat, etc. Rice during the process of milling and polishing loses all its contents of vitamin B and is much deficient in it. The other ingredients in diet may supply the patients other minerals and vitamins but vitamin B. Geographically, the diseases is common mostly in those parts of the country which are preponderantly rice-consuming areas, *i.e.*, Assam, Bengal, Bihar and the Eastern United Provinces.

The deficiency of vitamin B as the cause of kala-azar is suspected by the fact that of the 100 patients, referred to above, only six were Muslims and were perfectly non-vegetarians. But all these 100 cases were from the lower strata of the people, who being poor were always ill-fed and ill-nourished. The disease is very much common amongst the poor and it justifies our suspicion that the deficiency of vitamin B in the diet is the cause of kala-azar. Vitamin B is found in comparatively less amount than other vitamins.

Further, the disease is also prevalent amongst women. Of the 100 patients 25 were women. It is a common knowledge that women in our country care less for their diet and are constitutionally weaker from birth.

My observation shows that about 58 per cent of the patients suffering from kala-azar, are of the age group 10-20 years; and this is the growing period of life and at this stage vitamins are needed for the building up of normal health. As such the deficiency of

(Concluded at foot of col. 2, page 302.)

REVIEWS

BLOOD GROUPS IN MAN—By R. R. Race and Ruth Sanger. Published by Blackwell Scientific Publications, Oxford 1950. Pp. 290. Price 30*s*.

Knowledge of blood groups has of late become a necessity for a clinician as he is obliged to use blood transfusion more than he used to do before. But this book will show how difficult it is to keep pace with the advancement made in such a simple subject as blood groups. This book is mainly written for the specialist and as it is written by two workers who have been responsible for much of the present advancement in the subject the book is both interesting and useful.

This is a good book for all those who want to know the present status of Blood Groups including Rh factor.

1950 YEAR BOOK OF MEDICINE—Edited by P. B. Beeson, J. B. Amberson, W. B. Castle, T. R. Harrison, G. B. Eusterman. The Year Book Publishers Inc. 200 East Illinois Street, Chicago 11. Price $5·00.

It gives a special pleasure to go through the 1950 year book. This is the 50th volume of the publication and as such binding, lettering and volume has got special features to command to readers. The volume is, as in other years, divided into 5 parts and in each part the sectional editor has contributed a special article on the progress on the subject in the last decade (1940-50) which is followed by the usual practical abstracts. This volume covers infections, the chest, the blood and blood-forming organs, the heart and blood vessels, the kidneys and the digestive system. We heartily recommend the book to all those who want to be up-to-date.

THE BIOLOGY OF MENTAL DEFECT—By Lionel S. Penrose, M.A., M.D., Sidgwick and Jackson Limited, London, 1949. Pp. 285 and xiv. Price 21*s*.

To-day when Social Medicine has firmly established itself, this book is a specially significant contribution, as mental defect is a major problem in social medicine. The value of the book has become more as it is written by Dr. Penrose, the Galton Professor of Eugenics at University College London and no one is better qualified to write a book like this.

Prof. Penrose has discussed mental deficiency from the point of view of human biology. But he is conscious of the formidable task he has taken so 'the medical and psycho-pathological conditions encountered in mental deficiency practice are discussed chiefly within the framework of genetics' and that has kept the aspect of the subject in the right track. We agree with Prof. Haldane that this admirable book should not only be read by physicians, but by social workers and even by one or two of the Members of the Parliament and Peers who have to frame the law.

YOUR QUESTIONS

Correspondents should give their names and addresses (not necessarily for publication) and include all relevant details in the questions which should be typed. Questions of medical interest only will be acceptable for this section. They should be sent in a separate envelop marked "Your Questions". Questions of general interest will be published in preference. Lack of space precludes answering all the questions received.

Q. *A patient with congenital exophthalmos has a brother, one sister and his mother with the same condition. Is there any corrective surgery for such a defect?*

Ans. Any surgery performed for congenital exophthalmos must depend on the basic condition that is causing the protrusion of the eyeballs. Before a decision is reached as to the advisability of surgery, all possible investigations—clinical (to find out whether there is any flaccidity of the extra-ocular muscles), roentgenological (to find out whether there is any intracranial pathology), must be made. If surgical interference is to be done, it is to be undertaken by an expert neurosurgeon.

Q. *It is agreed that diphtheria immunisation is efficacious in infants and should be practised as a routine. I have a patient of 6 years suffering from asthma. Is there any danger of immunising this child with A.P.T.?*

Ans. As the child is above 5 years, A.P.T. cannot be used as it may produce severe reaction. Again a child with an allergic history will be a very bad candidate for T.A.F. as it contains a small amount of foreign protein. The rational procedure should be to do a Schick test. If it is positive a small dose of A.P.T. (0·2 c.cm.) can be used. If a pseudo-reaction follows, no further attempt at immunisation should be tried, but the Schick test is to be done again after 3 to 6 months. In any case a child of this age is not very susceptible to this disease and may be left without specific immunisation.

Q. *It is reported that Stilbœstrol is useful for premature infants. What is the rationale of administration of such a drug?*

Ans. Large amounts of œstrogen are present in the maternal circulation during pregnancy which pass through the placenta to the fœtus. This hormone is generally excreted within two or three days of birth. Though there is no definite proof it is assumed that this œstrogen is beneficial to the child. As the infant is born prematurely it is deprived of this hormone hence it is assumed that it should be administered for sometime. Only natural œstrogens are to be used, the usual dose being 500 i.u. (0·05 mg.) twice daily by mouth.

Q. *Penicillin cream is now used for various local conditions. Has it got any effect on Acne Vulgaris?*

Ans. The etiology of acne vulgaris is not yet settled. As it first appears during puberty an endocrine basis has been postulated. But probably in some cases seborrheic skin contributes its quota. Hence penicillin cream should have very little application in acne vulgaris.

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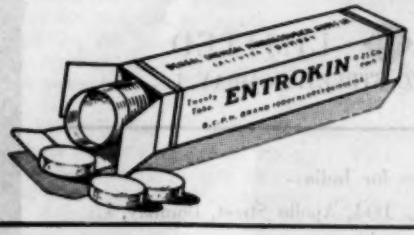

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CURRENT MEDICAL LITERATURE

Liver Function in Heart Failure

Branwood (*Edinburgh M. J.*, **57**:129, 1950) reviewed the clinical features of a group of patients with congestive heart failure to evaluate the part played by venous congestion of the liver in their symptoms. In 456 cases of congestive failure the liver was found to be enlarged in every case by the percussion method. In 44 per cent of these, enlargement was rather sudden. Following recovery from congestive failure the liver remained enlarged in 22·5 per cent and it was tender in about half of these. Jaundice was present in 18 per cent. One hundred twenty-six out of 456 cases had clinical jaundice, and of these 81 died, a 64 per cent mortality. This suggests that jaundice indicates a poor prognosis.

Seventy-eight per cent of these cases had ascites. In 5, ascites was the first sign of congestive failure, although all 5 were chronic alcoholics with evidence of concomitant portal cirrhosis. Urobilinogen was present in excess in the urine of 20 patients. It persisted in 4 who had apparently recovered although the liver remained palpable in 2 of these. If previous liver disease can be excluded the persistence of excess urobilinogen in the urine suggests a poor prognosis. The cephalin flocculation test was positive in 20 cases.

Many factors influence the liver function tests; these include circulatory disturbances, hepatocellular damage, conditioned nutritional deficiency, fever and bed rest. The author feels that cardiac cirrhosis or the hepatic fibrosis of heart disease cannot be diagnosed with certainty. It should be suspected in patients who have recurrent bouts of cardiac failure especially in the presence of rheumatic heart disease, and who complain of vague symptoms of indigestion, flatulence, fullness in epigastrium, nausea and vomiting, right upper quadrant pain with or without hepato or splenomegaly, anorexia, jaundice and ascites.

Circulatory Overload from Transfusion

The dangers of whole blood and plasma transfusion fit into three main groups: first, immunological reactions; second, the risk of serum hepatitis; and, lastly, risks of circulatory embarrassment resulting from a too large or too rapid transfusion. This last hazard is common to all types of fluid administered intravenously. It can be avoided only by an accurate assessment of fluid needs, combined with a careful watch for the first signs of cardiac embarrassment during transfusion, especially a rise in peripheral venous pressure. The clinical signs of dehydration—a rising pulse rate and urine concentration, loss of skin elasticity and ocular tension, with dryness of the tongue—may be confusing at times. When there has been no hæmorrhage or loss of plasma protein, the plasma specific gravity measured by the copper sulphate method (Van Slyke *et al*—*J. Biol. Chem.*, **183**:331, 1950) is a useful guide. This test is rapid and simple; for every 0·001 rise in plasma specific gravity above the normal level of 1·027 the patient may be presumed to lack 200 ml. of water. Again, blood concentration from dehydration can be assessed by determining the cell-plasma ratio with a hæmatocrit. This was seen to be especially useful in the late war during the treatment of burn shock, where rapid initial dehydration from exudation of protein and increased capillary permeability led to profound shock. Rapid and maintained plasma infusion to a normal and constant hæmatocrit value produced a steep fall in mortality (Studies of Burns and Shock—M.I.C. Special Report Series No. 249, Lond. 1944). When post-hæmorrhagic dilution has taken place the packed cell volume will give a reasonable index for blood replacement, cells from 500 ml. of blood being required to raise the average packed cell volume 5 per cent. Where the hæmorrhage is of unknown size and there has been no time for compensatory dilution of blood, but rapid transfusion is indicated, the estimate of quantity must be made by noting the improvement of blood pressure, and fall in pulse rate, with improvement in peripheral circulation. It is in these cases that a rapid transfusion is most needed but the dangers of over-transfusion are still present. For example, Pierce, Robbins, and Brunschwig (*Surg. Gynec. & Obstet.*, **89**:442, 1949) recently reported a method of rapid blood transfusion by means of an oxygen cylinder and flow-meter connected to the air-induction tube of the standard blood-transfusion bottle. The combined risks of excessive transfusion and air embolism (Dolton and others—*Lancet*, **1**:531, 1945) even with the most careful supervision, must outweigh any possible advantages this technique might have in emergency treatment.

Three groups of cases are especially sensitive to a too rapid or too large transfusion. First, there are those subjects in whom the myocardium is not normal. Holden, Cole, and Portmann (*Surg. Gynec. & Obstet.*, **90**:455, 1950) stress again the dangers of overload in the atherosclerotic patient, or those with ischæmic heart disease. They point out that a rise in pulse rate and a fall in blood pressure during transfusion may not be an indication of further hæmorrhage but rather of developing heart failure from overloading with fluid. Here the clue to the true position is the progressive and persistent rise in venous pressure which will precede the onset of pulmonary œdema. A transient rise in venous pressure will occur in normal subjects transfused with large quantities of fluid, but it is accompanied by little change in pulse or blood pressure (Sharpey-Schafer and Wallace—*Brit. M. J.*, **2**:304, 1942). In the second group typified by the severely anæmic patient, with a rapid collapsing pulse, warm pulsating extremities, high pulse pressure, and a raised venous pressure, even comparatively small transfusion may precipitate congestive cardiac failure (Sharpey-Schafer—*Lancet*, **2**:296, 1945). Here very cautious transfusion of packed red cells should be given, with careful observation of venous pressure. Any further rise in the already high venous pressure should call for either the slowing or the cessation of the transfusion. If heart failure occurs, raising the head of the bed to encourage venous pooling in the legs is useful, and intravenous digitalis should be given. The third group includes those cases in which, it has recently been suggested, death from anuric or oliguric uræmia is probably due to overloading with water and to tissue œdema rather than to so-called uræmic toxæmia. In this group it is important to restrict fluid, whether parenteral or by mouth to a maximum 1,000 ml. more than the urine output for 24 hours. This will allow for replacement of water lost insensibly in respiration, etc., and prevent over-hydration.—*Brit. M. J.*, **2**:770, 1950.

Acute Coronary Insufficiency due to Acute Haemorrhage

Master and others (*Circulation*, **1**:1302, 1950) basing on a clinical analysis of 103 consecutive cases of moderate or severe hæmorrhage admitted to the Mount Sinai Hospital observe:

The series includes those patients in whom evidences of hæmorrhage were considered to be of sufficient degree to require treatment and in whom one or more electrocardiograms were made during the hæmorrhage. The gastrointestinal tract

was the source of bleeding in 95 patients, the uterus in four, the prostate gland in two, and a ruptured aorta in two. Each patient was studied with particular regard to the amount and rapidity of hæmorrhage, hæmoglobin level, heart rate, blood pressure, presence of shock, and the electrocardiographic findings.

The 103 patients were divided into two general groups according to whether signs of coronary insufficiency were present or absent. There were 59 patients who presented clinical or electrocardiographic evidence of acute coronary insufficiency; of these, 32 showed electrocardiographic changes alone, six only clinical findings and 21 had both clinical and electrocardiographic evidence. The age of patients who developed coronary insufficiency ranged from 18 to 79 years.

The electrocardiographic changes, which occurred in 53 patients, consisted of flat or inverted T waves in 24 instances, RS-T depression in four cases, and combined RS-T and T changes in 25 cases. The latter findings represented the severest degree of coronary insufficiency. Although alternations occurred in all leads, Leads I, II and IV were most frequently affected. Reduced coronary blood flow resulting in anoxia, particularly of the subendocardium, was responsible for the RS-T depressions and T-wave inversions.

The changes in circulatory dynamics which were found to be associated with coronary insufficiency following hæmorrhage include the shock state, tachycardia, drop in blood pressure and decreased blood volume. Although anoxæmia due to fall in hæmoglobin was important, it was observed that coronary insufficiency occurred in the absence of anæmia when the clinical features of shock predominated. This emphasizes that rapidity of blood loss may be more significant than the actual amount.

Twenty-two of the 103 patients died following the hæmorrhage and 18 of these presented signs of acute coronary insufficiency. Necropsy in 13 cases revealed that the morphologic myocardial changes, when present, varied from tinctorial changes, smudginess of myofibrils and focal necrosis to grossly recognizable confluent zones of infarction. The ischæmic lesions were usually noted in the subendocardial region of the posterior wall, septum and papillary muscles of the left ventricle. Pericarditis and mural thrombosis were conspicuously absent. Although coronary arteriosclerosis and varying degrees of stenosis of the lumen were often present, acute coronary occlusion was not found.

Hæmorrhage exerts a deleterious effect upon the myocardium and was responsible for the production of heart failure in 10 per cent of the cases herein reported. By the same mechanism, hæmorrhage may intensify the cardiac failure already present.

The treatment for hæmorrhage is, of course, adequate blood transfusion. Whole blood should be given especially early to those patients in whom a predisposing factor of coronary insufficiency is suspected. Treatment should be instituted before the myocardium is impaired, since in such state intravenous infusion will be of little or no avail. The value of the daily electrocardiogram lies in the fact that not only is it an objective sign of coronary insufficiency but also that it will reveal RS-T depressions and T-wave inversions which may precede the appearance of clinical evidence of coronary insufficiency. Blood should be administered until bleeding has ceased and pulse rate, blood pressures, hæmoglobin determinations and electrocardiograms have been restored to normal values.

The authors arrive at the conclusion that hæmorrhage is one of the most frequent and important precipitating causes of acute coronary insufficiency and assumes grave significance in patients whose coronary circulation is already impaired by antecedent heart disease such as coronary arteriosclerosis, aortic stenosis, enlarged heart. In such patients acute hæmorrhage may be followed by myocardial ischæmia of sufficient severity and duration to produce clinical, electrocardiographic and anatomic evidence of acute coronary insufficiency.—*U.S. News Letter.*

Cortisone: Its Clinical Use

Carlisle (*Brit. M. J.*, **2**:590, 1950) gives in the table below response of various diseases to cortisone:

TABLE 1—RESPONSE OF VARIOUS DISEASES TO CORTISONE

Beneficial effect often dramatic	*Results encouraging, but require further evaluation*	*Transient beneficial effects observed*	*No beneficial effects established*
Rheumatoid arthritis	Various allergies: Hay-fever	Acute leukæmia (lymphocytic or granulocytic)	Diabetes mellitus (increases insulin requirement)
Rheumatic fever	Angioneurotic œdema	Multiple myeloma	Myasthenia gravis
Rheumatoid spondylitis	Drug sensitization	Lymphosarcoma	Cushing's syndrome
Still's disease	Serum sickness	Hodgkin's disease	Amyotrophic lateral sclerosis
Psoriatic arthritis	Acute gouty arthritis	Chronic lymphatic leukæmia	Multiple sclerosis
Lupus erythematosus (early)	Ulcerative colitis		Progressive muscular atrophy
Addison's disease	Regional enteritis		Congestive heart failure (may be detrimental in some cases, but cases secondary to acute carditis may be benefited through effect of cortisone on inflammatory lesions
Asthma (status asthmaticus)	Nephrotic syndrome		
Inflammatory eye disease	Scleroderma (early)		
Exfoliative dermatitis	Dermatomyositis		
Pemphigus	Psoriasis		
Panhypopituitarism	Periateritis nodoso (early)		Chronic myelogenous leukæmia
	Pulmonary granulomatosis		Acute monocytic leukæmia
	Alcoholism (?)		Glomerulonephritis (exclusive of nephrotic syndrome)
			Poliomyelitis
			Osteoporosis (may be detrimental)?

Regarding the mechanism of action of cortisone the author writes: At the present time we have information indicating that (1) cortisone and/or compound F is involved in the metabolism of carbohydrate, protein, and fat; (2) it is necessary to the normal function of certain endocrine organs; (3) it exerts profound effects on neuromuscular metabolism; (4) it has distinct immunological effects; (5) it can bring about remarkable cytological changes; and (6) it is involved in several specific enzyme systems (see Table II).

TABLE II—CERTAIN KNOWN (OR PROBABLE) EFFECTS OF CORTISONE

Metabolic	*Interendocrine*	*Neuromuscular*	*Immunological and serological*	*Cytological*	*Enzymological*
Increases gluconeogenesis	May either depress thyroid activity (probably *via* diminished pituitary production of thyrotropic hormone) or increase sensitivity of tissues peripherally to thyroid hormone	Restores capacity of muscle for work in adrenalectomized animals	Tends to bring about a restoration of normal A.-G. ratio in disease	Produces lymphopenia (some species) and eosinopenia in peripheral blood	Diminishes hyaluronidase activity.
Lowers renal threshold for glucose	Increases insulin requirement. In individuals with normal pancreatic reserve this requirement is adequately met, but in latent or overt diabetes additional insulin must be administered	May cause increased activity in electroencephalogram (increase in frequency of alpha waves) or appearance of abnormal slow rhythms	Diminishes antibody response to typhoid antigen in rabbits	May increase tissue eosinophils and metaplasia of fibroblasts into eosinophils	Probably reduces blood glutathione.
Opposes the action of insulin	Relative hypoglycæmia may occur after withdrawal of cortisone	May restore electro encephalographic pattern to normal in Addison's disease	Diminishes or abolishes tuberculin reaction	Inhibits fibroplasia	May be involve in enzyme systems concerned with pigmentation of skin.
Increases mobilization and utilization of fat	Restores normal diuretic response to ingested water in Addison's disease	May induce euphoria and increased psychomotor activity	May prevent vascular lesions otherwise resulting from injection of D.C.A. (rats) or heterologous serum (rabbits)	Increases growth of macrophages in tissue culture	Increases arginase in liver and kidney of mice.
Increases protein catabolism, urinary nitrogen, and urinary uric acid	May delay or inhibit menstruation, probably *via* depression of pituitary gonadotropic activity	May precipitate psychotic reaction (probably only in predisposed individuals	Prevents or reduces tissue reaction to chemical irritants (guinea-pigs)	Stimulates reticulocyte production or release	Increases urinary excretion of uropepsin in patients with Addison's disease.
Increases deposition of hepatic glycogen		May increase muscle strength (in rheumatoid arthritis) or may cause muscle weakness (probably only in cases of hypopotassæmia)	May inhibit formation of histamine.	May bring about polycythæmia	
May bring about retention of sodium				May increase neutrophils in peripheral blood	
Increases urinary excretion of chloride and potassium				Causes involution of lymphoid tissue and of certain neoplastic tissues	
May increase calcium and phosphorus excretion					

It must be emphasized most strongly that cortisone is an agent with powerful biological actions. The patient receiving cortisone must be closely watched at all times for the development of unfavourable side-reactions. The most important precautions relative to these are:

1. Evaluation of relative contraindications before using cortisone.
2. Restriction of dietary sodium chloride.
3. Correction of hypopotassæmia.
4. Control of hyperglycæmia.
5. Detection of early psychic disturbances.
6. Supervision of patient following cortisone therapy.

Treatment of Pulmonary Tuberculosis with P.A.S. and Streptomycin

The following is the conclusion of the Medical Research Council investigation on the results of treatment of pulmonary tuberculosis with P.A.S. and streptomycin:

166 patients with acute progressive bilateral pulmonary tuberculosis were studied in a clinical trial of P.A.S. and streptomycin.

59 patients were treated with P.A.S. (P group), 54 with streptomycin (S group), and 53 with both streptomycin and P.A.S. (SP group). Patients were assigned to a treatment group by random selection.

P.A.S. was given in the form of the sodium salt, 20 gm. daily. The daily dose of streptomycin was 1 gm. Chemotherapy was given for three months, and observation for the trial continued for a further three months.

Patients treated only with P.A.S. fared much better than patients with similar disease treated without chemotherapy in the first M.R.C. trial of streptomycin in pulmonary tuberculosis.

P.A.S. was less effective than streptomycin. In 34 per cent of the P group there was no appreciable radiological

change, compared with 6 per cent of the S group. Marked radiological improvement (2- or 3-plus) was seen in 22 per cent of the P group and in 56 per cent of the S group. The difference was greatest in febrile patients.

Improvement was somewhat greater in the SP group than in the S group, but the differences were small. The proportion of cases becoming bacteriologically negative was highest in the SP group. The outstanding effect of combined therapy was on emergence of drug resistance. Strains with a streptomycin resistance ratio above 8 were isolated in 33 of 49 S cases, and in only 5 of 48 SP cases; in 2 of these 5 there was only a single resistant culture.

Deterioration in the S group was related to the emergence of streptomycin resistance.—*Brit. M. J.*, **2**:1073, 1950.

Potassium Deficiency in P.A.S. Therapy

Cayley (*Lancet*, **1**:447, 1950) warns that in the treatment of pulmonary tuberculosis with p-aminosalicylic acid (PAS), the blood potassium may be dangerously lowered, producing cardiac arrhythmias and symmetrical paralysis. Of the 3 cases presented, one acquired ventricular premature contractions, one symmetrical paralysis of the hands, and the third acquired changes in the S-T segments and T waves, not unlike the changes produced by digitalis. In all, the serum potassium was materially reduced and, when the drug was discontinued, the serum potassium rose to a normal level and the complications abated. In those receiving PAS in whom no complications occurred, the serum potassium consistently remained at a normal level. The author feels that the cardiac changes noted may have been due to the decreased intracellular concentration of potassium in the heart, while the paralysis may have been due to an inability of the tissues to release or synthesize acetylcholine at the myoneural junctions.

Sulphadiazine *versus* Sulphaguanidine in Acute Bacillary Dysentery

Khan (*Indian Med. Gaz.*, **85**:490, 1950) gives in the following lines the summary of his observations on comparative value of sulphadiazine and sulphaguanidine in the treatment of acute bacillary dysentery.

The study of 191 cases of bacillary dysentery treated alternatively by sulphadiazine and sulphaguanidine is given.

Both sulphaguanidine and sulphadiazine are useful in the treatment of bacillary dysentery though 2·7 per cent failed to be cured with sulphaguanidine but responded to sulphadiazine.

The speed of recovery is greater with sulphadiazine than with sulphaguanidine.

Finding of bacillary exudate in the stools warrants the use of chemotherapy without waiting for the culture report as culture positive as well as culture negative cases respond equally well.

On the average 7·25 gm. of sulphadiazine and 33·3 gm. of sulphaguanidine are required for the treatment of acute bacillary dysentery.

From the economic point of view sulphadiazine is very much the cheaper drug in the treatment of bacillary dysentery.

Treatment of Severe Liver Disease

Latner (*Brit. M. J.*, **2**:748, 1950) gives a regime for the treatment of severe liver disease of acute onset.

Five cases have been treated, with only one death.

In contrast, six cases treated with cystine intravenously showed 100 per cent mortality.

Two further cases have been successfully treated prophylactically after surgical intervention.

The regime, as finally developed, is as follows:—

Infusion 1—To each pint of 10 per cent dextrose in normal saline are added 50 mgm. of thiamin hydrochloride, 150 mgm. of nicotinamide, and 50 mgm. of riboflavin as well as 0·5 gm. of potassium chloride.

Infusion 2—This consists of plasma to which the vitamins alone have been added in the same concentration as in Infusion 1.

The patient's blood group is immediately determined and appropriate donors are contacted. Penicillin 1,000,000 units, is administered daily for 10 days. During each 24 hours three separate pints of Infusion 1 are administered intravenously at six-hourly intervals and after a further six hours one pint of Infusion 2 is given. During this period 300 mgm. of tocopherol is administered intramuscularly in three divided doses.

This treatment is continued until such time as fluids can be safely administered by mouth; usually two or three days. It is important to administer the tocopherol by mouth as soon as possible, as it is said to be much more effective by the oral route (Goettsch and Pappenheimer, 1941). As recovery sets in, the vitamin dosages are halved on consecutive days until they can be replaced by a reliable polyvitamin preparation, which is continued through convalescence.

As soon as the patient is able to take fluids by mouth, "hepovite" is administered in gradually increasing dosage until the patient is receiving 2 oz. (62 gm.) daily in addition to the ordinary diet.

Unfortunately, in the early stages hæmorrhagic incidents are common. In this series they have taken the form of epistaxis or melæna. It is of the greatest importance to be constantly on the alert for signs of severe hæmorrhage. This must be treated by the immediate administration of appropriate amounts of fresh donor blood to each pint of which the vitamins have been added in the same concentrations as in the infusions. It must be emphasized that for this purpose stored blood is useless, as the hæmorrhage is due among other factors to prothrombin deficiency.

If an infection which is obviously not responding to penicillin develops, a course of streptomycin may be given. Sedatives are best avoided. However, these patients are liable to become very restless and extremely difficult to nurse, and on occasions it may be necessary to administer paraldehyde. Morphine should not be given.

Aureomycin in Acute Anterior Poliomyelitis

Weis and Winston (*Illinois M. J.*, **98**:9, 1950) from an analysis of 52 cases of poliomyelitis write: Four of the cases did not receive aureomycin; 32 cases received less than 2·0 gms. or more of aureomycin per day. There was a statistically significant difference in the recovery rate of paralytic cases and in the duration of temperature elevation between those who received adequate dosage of aureomycin and those who did not. With the dosage of 2·0 gms. of aureomycin or more the duration of fever was about one-half as long as in those who received less than 2·0 gms. or no aureomycin

at all. The authors feel that aureomycin should be given further clinical trial in a larger series of cases, so that its clinical effectiveness in this disease can be further evaluated.

Adrenaline Cream for Massage

Moss (*Med. Pr.*, **223**:515, 1950, Ref. *Brit. J. Phys. Med.*, **13**:258, 1950) has used adrenaline cream (1 in 5,000) in the treatment of chronic rheumatism, and he gives advice as to its uses. A series of 100 cases of non-articular rheumatism comprised patients aged 15-90 years, in whom symptoms had been present for from 1 week to 20 years or more. The number of treatments given varied from 3 to 15, and 90 patients were discharged symptom-free within 2 weeks or less. Slight recurrences were noted in 5 cases. The diagnosis in these 100 cases included lumbago (acute and chronic), generalized fibrositis, cervical fibrositis and chronic head pains, scapulo-humeral and gluteal rheumatism, and periarthritis. Obese patients with deep-seated panniculitis did not respond well to this treatment. Cases of osteoarthritis, with associated periarthritis of large joints, have been treated with good results, as have cases in the later stages or rheumatoid arthritis. In non-articular cases, after a search for "myalgic spots", adrenaline cream is massaged into the affected parts, causing general relaxation and softening of tense muscles and lessening of pain, which occur within 1 minute, and the myalgic spots can then be palpated; each is manipulated gently for 10-15 seconds, and then light superficial massage is applied to the whole area, a complete treatment lasting not longer than 5 minutes.

General Principles of Psychotherapy

Alexander (*Am. J. Psychiat.*, **106**:721, 1950) states that much is conveyed by the manner and attitude of the doctor; perhaps less by what he says than by how he says it. He divides the types of technique of psychotherapy into *seven* main groups. (*i*) Supportive treatment, in which a complete and thorough history is taken and a complete and thorough examination is made, after which the doctor is convinced of the truth of his diagnosis and by word and deed can reassure his patient. (*ii*) Ventilation, which results in the patient's being interrupted as little as possible during the relating of his narrative. It is particularly useful in anxiety states of the higher age group. (*iii*) Abreaction, which is the release of tension associated with the history telling, sometimes achieved by direct urging, sometimes by the use of drugs such as ether, the barbiturates or "Benzedrine" sometimes by hypnosis. It is useful in cases of recent acute stress, particularly those in which the patient has reacted to such stress with profound inhibition. (*iv*) Shifting of the emphasis or the "flanking movement", in which the patient is not confronted with his conflict; but without much interpretation his attention is directed to a solution, and the emphasis is shifted from the past to the future. (*v*) Interpretation of an emotional illness for the patient, which requires the greatest amount of skill tact and timing. The results are seldom dramatic, but rather a slow process of understanding resulting from continued co-operative efforts of patient and doctor. (*vi*) Suggestion, which is most successful in hysteria, and then only when attention is paid to the basic problem underlying the personality disturbance. It is far less powerful than is commonly assumed and should be positively expressed. (*vii*) Reassurance, which can commonly be helpful while an explanation of the patient's illness is presented to him, whether it be of emotional or physical origin. To be acceptable the doctor must have given sufficient time to convey that what he is saying is the truth. He must show an interest and concern for the patient's welfare, although it may not be possible to offer the hope of cure.

Treatment of Scabies

Carleton (*Practitioner*, **165**:549, 1950) writes that many drugs will kill the itch mite; it will suffice to mention two.

Sulphur for many dermatologists is still the first choice, in the form of ointment of sulphur B.P. (10 per cent.). For children this may be diluted to 5 per cent., and for babies to 2½ per cent. The patient is instructed to take a bath. The skin is then dried and the ointment rubbed in all over the body, but with special attention to the webs of the fingers, the wrists and inner sides of the feet, the elbows and axillary folds, the breasts in women and the genitalia in men. It is not necessary to treat the head and neck. Further applications of ointment are made twice daily for two or three days, and after the fifth or sixth application a bath is taken. All this time, the patient should wear the same clothes next the skin and use the same sheets. After the final bath, these clothes are washed.

Benzyl benzoate—A quicker treatment became popular during the war and may be used in the form of: Benzyl benzoate—33, Emulsion base, *e.g.*, 2 per cent. lanette wax in water—100.

This treatment also begins with a bath. While the patient is still wet, the emulsion is painted on for five minutes with a paint brush or shaving brush. This is allowed to dry and a second coat is painted on top. The same underclothes are worn for twenty-four hours, after which the treatment ends. In severe causes it may be repeated at the end of one week. It should be explained clearly to patients that they must not continue the treatment beyond the appointed time. Itching rarely disappears at once, and all lesions will not vanish in three days. The papules which appear on the penis in scabies may even last for weeks after cure. But the patient is naturally tempted to continue a treatment which is proving so beneficial, and if unchecked is likely to substitute a sulphur or benzyl benzoate dermatitis for the original scabies. If itching is severe, a follow-up treatment with calamine cream and phenobarbitone will satisfy the patient and soothe the skin.

Clothes and bed clothes—Although many textbooks state that these must be sent away for sterilization, ordinary laundering of sheets and underclothes is nearly always sufficient.

Apparent Failure of Treatment—If a patient shows no improvement after a properly applied treatment, it is unlikely that the disease is scabies. If he improves but later relapses, he is being reinfected, most likely by a near contact.

Complications—Treatment of different kind is needed for such complications as secondary infection with impetigo or boils. Children often present with a pustular infection of the extremities which masks an underlying scabies. After the acarus has been eliminated with sulphur or benzyl benzoate, weak dettol or potassium permanganate soaks, followed by calamine cream, should be sufficient. Penicillin or sulphonamide creams should not be used, they are not necessary and are liable to irritate. Dermatitis venenata from sulphur or benzyl benzoate or other parasiticides is also a possible sequel, even when the treatment has been correctly carried out, but much more often when it has been continued beyond the proper period. Calamine cream or zinc ointment and castor oil are suitable applications.

With all these complications, the important point is to realize that further antiparasitic treatment will only make matter worse. Like the sluggish bowel, the patient's skin undergoes a lot of unmerited suffering because of too much zeal.

Amphetamine Sulphate in Barbiturate Poisoning

Nabarro (*Brit. M. J.*, **2**:924, 1950) writes that intravenous amphetamine sulphate is a useful ancillary drug in the treatment of acute barbiturate poisoning. In mild cases in which rapid awakening is desirable it is effective and safe. In severe cases it is of little value in the early stages, but it may shorten the duration of coma if given later, particularly when picrotoxin is producing preconvulsive muscular twitching.

A case is described in which the patient took 96 gr. (6·3 gms.) of phenobarbitone 31 hours before admission to hospital. He recovered after 137 hours in coma. Treatment included 4,230 mgm. of amphetamine sulphate and 1,086 mgm. of picrotoxin.

A programme for the management of cases of acute barbiturate poisoning is outlined:

If there is marked respiratory depression restorative measures should be applied at once. Intravenous picrotoxin, 6 mgm., should be given, and if there is no response 12 mgm. every 30 minutes. Oxygen administration may be useful, and in extreme cases the use of a mechanical respirator should be considered.

When respiration is restored, or in less severe cases immediately on admission, the stomach should be washed out with 16 pints (9 litres) of saline. (The stomach contents should be retained for examination.) Twenty grammes of magnesium sulphate should be left in the stomach.

The intravenous administration of picrotoxin, 12 mgm. every 30 minutes, should be continued. A careful watch must be kept for twitching of the facial muscles; picrotoxin must be stopped if this occurs, and amphetamine, 20 mgm. at similar intervals, should be given. If the coma then deepens, picrotoxin, 6 mgm., every 30 minutes should be restarted; otherwise amphetamine should be continued until the patient regains consciousness and for some hours after, in decreasing doses and at lengthening intervals.

If the patient shows no response after the first few hours it is desirable to cut down on a leg vein and set up a drip infusion. A plaster cast should be applied to the leg, otherwise as the patient becomes restless serious damage may occur. The analeptic drugs are given into the tubing of the drip. The fluid given should be glucose (5%) in varying concentrations of saline according to the urinary chloride content. The rate of flow must be regulated to maintain a good urinary output without causing any pulmonary oedema.

Rectal wash-outs should be done daily in order to remove any barbiturate in the lower bowel.

Milk by gastric tube should be given, and probably vitamin-B complex by intramuscular injection as long as a glucose drip is running.

To prevent pulmonary infection prophylactic penicillin should be given, also CO_2 and oxygen inhalations every two hours, and the patient should be nursed on his side and turned frequently.

In mild cases in which the patient exhibits spontaneous movements, a stomach wash-out is in many cases all that is needed; but if for any reason rapid awakening is desirable, one or two intravenous injections of 20 mgm. of amphetamine at 30-minute intervals may be given. Some patients admitted shortly after the ingestion of the drug may present a deceptive appearance and should be watched carefully, since they may sink deeper into coma.

Artane and Lysivane in Parkinsonism

Gallagher and Palmer (*New Zealand M. J.*, **49**:531, 1950) report on the experience with both Artane and Lysivane in 14 patients. This comparison is ancillary to experience of a further 26 patients treated with Lysivane alone. Both drugs produce benefit in the majority of cases, Lysivane on the whole appearing to be the superior of the two. Lysivane may be combined safely with stramonium. Some patients do well on one drug who do not do so well on the other. Selection by trial is necessary to determine which is preferable. Toxic effects are minimal. Further experience is required to determine the value of these two drugs used in combination. The average clinical dose of Lysivane employed was 5 tablets of 0·05 grammes daily and the average clinical dose of Artane employed was 5 tablets of 2 milligrammes daily.

Lysivane is dispensed in tablets containing 0·05 grammes and commencing with one tablet twice daily may be given in gradually increasing doses until five tablets a day are being taken. A week is then allowed to elapse whereupon a cautious increase to 10 tablets a day may be made. Minor side effects of drug administration are some drowsiness and lassitude, with or without vertigo, appearing within half an hour and lasting one or two hours after administration and most apparent in early treatment. This eventually passes off and is effectively countered by strong coffee or amphetamine sulphate. What may be release phenomena in the guise of formication, irritations and cramps, are paraesthesiae related to the disease syndrome and are relieved by aspirin. They disappear in some weeks. Dryness of the mouth, transient diplopia and vasomotor reactions rarely may occur but disappear spontaneously. Only the first group of minor toxic complications have been encountered by the authors. The initial placebo effect of "the new treatment" probably accounts for the curve of response which often shows a temporary remission about a fortnight after commencing treatment. Treatment must never be stopped suddenly with Lysivane.

Physiotherapy is a useful, and in many cases mandatory adjuvant in the problem of case handling and occasionally it will be found justifiable to reduce orthopaedic deformities by surgery in chronic cases in which secondary contracture deformities have occurred. All the individual symptoms may respond but the oculogyric crises prove the most intransigent. The psychic effect is far and away the most significant and the authors hazard the opinion that this is not entirely dependent on the motor benefit. One patient formerly enuretic regained control over her sphincter.

Artane is dispensed in tablets of two sizes containing 2 mgm. and 5 mgm. respectively. Treatment should be started with 2 mgm. twice daily and gradually increased over the week until a maximum of 12 mgm. is being taken. Side reactions are minimal with this drug and if blurring of vision occurs the drug should temporarily be reduced to a lower level. If sialorrhea be troublesome small amounts of atropine may be added. In general the authors allow the patient a three week trial on either drug before changing gradually to the second.

SUPPLEMENT
Journal of the Indian Medical Association

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SOUTH INDIAN PROVINCIAL MEDICAL CONFERENCE—The delegates and visitors to the Fifth South Indian Medical Conference held at Mangalore arrived on 12th October, 1950 and were accommodated in pre-arranged quarters. The President, Dr. U. Krishna Rao of Madras, attended the Provincial Working Committee Meeting on the same day at 7 p.m., held in the A. Subba Rao Pai Memorial Hall.

On 13th October the President was received at 8 a.m., along with Dr. J. C. David, Dr. T. Laxminarayanan and Sri L. C. Pais, B.A., B.L., by the Chairman, Reception Committee, at 8-30 a.m.. Sri L. C. Pais, Chairman, Municipal Council, unfurled the National Flag after invocation by girl volunteers. After the flag salutation ceremony was over the members assembled in the Bhuvanendra Hall where Sri L. C. Pais delivered a speech on the National Flag, and the girl volunteers sang the *"Vande Mataram"*. This was followed by the address of Dr. U. P. Mallaya, Chairman, Reception Committee who at the end of his speech requested Dr. J. C. David to inaugurate the Conference. Dr. J. C. David then delivered his inaugural address. Dr. P. A. S. Raghavan, the retiring President, after a short speech, conducted Dr. U. Krishna Rao to the presidential seat from where the President delivered his address. At the end of the speech, elections to the Subjects Committee took place when the assembly adjourned for some time. At 11-30 a.m. the Lord Bishop of Mangalore, Dr. V. R. Fernandes D.D. was requested by Dr. K. Nagappa Alva, Vice-Chairman, to declare open the Exhibition. After a thought-provoking address, His Lordship opened the Exhibition. All present went round the stalls and the assembly adjourned.

DR. U. KRISHNA RAU, M.D., B.S.
President, V South Indian Provincial Medical Conference, Mangalore.

At 1-30 p.m. the delegates and visitors were taken round to visit the Cashew Factory of Messrs. Pierce Leslie & Co., Ltd., and the Tile Factory of Messrs. Commonwealth Trust Ltd. The visiting members were very much impressed with what they saw.

At 4-15 p.m. the members assembled and the Scientific Session started, Dr. K. M. Rai, Director, Benard Institute of Radiology, Madras, was proposed to the chair, Dr. T. Laxminarayanan inaugurated the Scientific Sessions.

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PRESIDENTIAL ADDRESS

The following are excerpts from the presidential address delivered at Mangalore by Dr. U. Krishna Rau, Madras, on 13th October, 1950 at the 5th South Indian Provincial Medical Conference of Indian Medical Association:—

FELLOW DELEGATES, LADIES AND GENTLEMEN,

It is some time now since a new era has dawned on the country. The alien rule has come to an end and we have attained complete Sovereign Independence, free to order our affairs in the manner we think best in the interests of the country. It had been our practice in the Conferences that were held in the pre-independence era to arraign the foreign government for their various sins, for their various acts of commission and omission. Our voices were not heard; our legitimate demands were not met; our suggestions were not given heed to. The picture has now changed completely. This change has roused considerable expectations in the minds of the people that the many promises that had been made would be fulfilled, that the many expectations that they had fondly built up would materialise and that life would be made worth living.

FOOD AND HOUSING

Public health, in the words of our Prime Minister, is 'obvious and trite.' It depends far more on other factors than just drugs and medicines. It depends on enough nourishing food to eat and relatively decent living conditions. In both these respects the condition in India at present is far from

satisfactory. The power of resistance of the people has gone down considerably. It is no good trying to treat a man who is starved or undernourished. We can treat him today, but he will go back again because he has not got the wherewithal to live. It is a good sign that the preventive aspect of medicine is receiving more and more attention these days. And the ensuring of adequate nourishing food and proper housing conditions will help considerably the prevention of diseases.

MEDICAL PERSONNEL

The members of the profession have a great part to play in the building of public health, on which depends the future welfare and prosperity of the nation. But compared with other advanced countries in the West, India is lacking in everything that is needed to improve public health. The people in this State are lacking considerably in medical facilities, and information is now and then vouchsafed to us in the Legislative Assembly that more and more institutions had to be closed down for lack of personnel. It is one of the elementary duties of the State to provide the citizens with adequate facilities to enable them to keep themselves fit to shoulder the responsibilities of citizenship, and if, owing to financial stringency, it is not possible to make any large scale investments for establishing more and more Colleges, it is necessary that at least the existing facilities should be exploited to the fullest extent possible to meet, at least partially, the growing needs of the people. I am aware that the number of students admitted into our medical colleges has been increased recently, but it is not sufficient to satisfy the requirements. Steps should therefore be taken to take in more students than are at present allowed. The introduction of the shift system is one of the means by which this difficulty can be met. And such a system which is working satisfactorily in other countries is bound to work equally well here also, in spite of existing limitations and the lack of facilities.

MEDICAL EDUCATION

In order that the many problems of public health and medical relief which require serious attention can be attended to properly, the medical profession has been insisting from a long time past that the caste system in the profession should be abolished and that there should be only one standard of medical education in the country. The Bhore Committee which also examined the matter expressed the definite opinion that there should be only one standard and that must be the M.B., B.S. course of the universities. The Health Minister of India has been consistently urging that the training of medical personnel is one of paramount importance and that this training must not only be of a high standard but also be uniform throughout India. Thanks to our efforts, the licentiate course has been abolished. But unfortunately some Governments in the country have not risen to the occasion as they should have and still stick to the continuation of a shorter course to produce quick results. The action of a Provincial Government in introducing a three-year course can be quoted as an instance in point.

While on this subject I cannot refrain from referring to the view widely held that the present course of medical education can be safely shortened without in any way impairing the efficiency, by reducing the course in some subjects which are not of very much use in their practice later. But at the same time there is also the other view that the standard must be improved with a view to make the students more useful and efficient in their work when they begin their practice. So far as the Madras University is concerned, the standard is fairly high and our University has received encomiums even from foreign experts that it is the best University in the East. In regard to the reduction in the course, there is much to be said in its favour. Even in advanced countries in the West the same problem is engaging the attention of the training bodies. The Goodenough Report is the result of such an enquiry. It is time that our Universities also put their heads together and revise the curricula in all subjects in the light of the views expressed in these Reports and the experience so far gained.

OUR ASSOCIATION

"The proof of the pudding is in the eating." The good work that the Indian Medical Association is doing has helped considerably to increase its strength. But there are yet many in the profession who have not joined it for reasons unknown. The establishment of independence has increased our responsibilities in guiding the Government on right lines in the solution of the many public health and medical problems that await solution. It is, therefore, the duty of those who are still keeping out of the Association for reasons of their own to give up their isolationist policy and join the Association and make it a strong, united and powerful body, whose opinions the Governments in the country would be bound to respect and act upon.

AMALGAMATION OF I.M.A. AND A.I.M.L.A.

In this connection I have to refer to the persistence with which some members of the A.I.M.L.A. seek to maintain the separate identity of their Association in spite of the fact that the question of the amalgamation of the two Associations has been in the air for some years, and in spite also of the fact, according to the Honorary Secretary of the Association itself, that many members of the Association are against continuing the *status quo*.

The I.M.A. is anxious that the two organisations should be amalgamated in the common interests of the profession as a whole and has been ever ready and willing to accommodate the A.I.M.L.A., to the maximum extent possible. It makes no discrimination against licentiates, and it honours as much the licentiates, as it does the other members. The very fact that Drs. U. Rama Rau and R. A. Amesur, both licentiates, were elected to the Presidentship of the Indian Medical Association annual conferences, that P.A.S. Raghavan and Dr. Chhabil Das were elected to the Presidentship of the South Indian Medical Conference and the East Punjab Provincial Medical Conference respectively, is proof, if proof is needed, that the I.M.A. makes no discrimination whatsoever. The I.M.A. stands for equality of status among all the members of the profession irrespective of their academic qualifications.

RURAL MEDICAL RELIEF

India is a land of villages. In spite of the migration of a large number of people from these areas, for want of means of subsistence, to towns in search of jobs to keep their body and soul together, still 80 per cent of the population of the

HYDROPROTEIN

PROTEIN HYDROLYSATE

rich in essential amino acids

HYDROPROTEIN (Inj.) contains 5% protein in the form of amino acids and peptides in normal saline.

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country live in rural areas scattered all over and eke out a miserable livelihood on what little they are able to get. Many of these villages lie far away from urban areas, and many of them are even unconnected by roads and the people in these villages have to lead an isolated life, cut off from the world during the heavy rainy season. Medical facilities they have none. Even the limited number of practitioners who are available in the country, accustomed as they are to town life during their scholastic career, have settled down in urban areas. No wonder the rural population fall an easy prey to the many epidemics that ravage the country from one end to the other in season and out of season. If the rural dispensaries are to serve the purpose for which they are intended, *i.e.*, cater to the medical requirements of the people, they should be fully equipped with a view to afford the opportunity to the practitioner-in-charge to utilise his knowledge and talent to the best advantage on the people. Then and then only can all the knowledge acquired by him be made available to the public and also saved from becoming rusty. While it is necessary to equip the Central Medical institutions which cater to the needs of a large number of people with the required personnel and facilities to meet any emergency that may arise, it is equally important that the rural dispensaries should also be fairly well equipped for any contingency.

Disease makes no difference between a townsman and a villager, and the facilities that townsmen have must also be made available to the rural population in a fairly good measure. There is no justification to treat the rural dispensaries in a step-motherly fashion. If the rural areas are to be provided with real medical facilities which they are entitled to by virtue of the large contribution they make to the economic prosperity of the country, the present distinctions should be done away with, and the rural dispensaries provincialised and placed on a par with others. Then the differences in the pay and prospects would vanish into thin air and people posted to rural areas would not remain condemned all their life to a particular area, where the society they need is lacking and where facilities for the education of their children are non-existent now. It is true that such a reform will entail huge expenditure but that can be made good by the reduction in the present expenditure, through the expansion of the honorary system.

INDIGENOUS SYSTEMS OF MEDICINE

I now turn to a subject on which, after the publication of the Yodh Report (Provincial) and the Chopra Committee Report (All-India) a great deal of controversy and animated discussions have cropped up—I mean the indigenous systems of medicine—due entirely to a misconception of the basic factors involved. No one, least of all the allopathic practitioner, disputes the fact that the Ayurveda and Unani systems are hoary and famous, that they have served India well in the past, that they still command a large volume of public support, that they have created for India a very creditable record in the field of medicine in the past and that these two systems have some excellent remedies for certain kinds of diseases. It is one thing to admit all these things, but it is a quite different thing to say that because of these they should be accepted as scientific and integrated with the modern system of medicine. Even the Chopra Committee did not claim perfection to these systems. From the summary of the Report made available to the public through the Press, it is clear that the confounding of medical science and medicinal preparations as one has led to considerable confusion of thought which has warped its outlook. The Committee admits that to salvage the knowledge and experience of these systems, painstaking research is necessary. They, therefore, recommend that research should aim to clear Indian medicine of centuries of accretions of doubtful value and to make its science and art intelligible to the modern mind, and to work out a synthesis of these two systems. These are contradictory not only in terms but also in effect. When the accretions of centuries have been cleared and these sciences and arts are made intelligible to the modern mind, it would be time enough to think of a synthesis of the two different systems (indigenous and allopathic). But even then, they should stand the scientific test and must be self-contained.

The Health Ministers in their Conference held in New Delhi have revived the caste system in the profession, to bring about the abolition of which we had to struggle for long, in a much more objectionable manner than it had been previously, by introducing a number of castes in the profession *viz.*, (1) those trained in Allopathy only, and (2) those trained in Allopathy and the indigenous system concerned, dividing the latter further into two more castes, *viz.*, graduates in indigenous medicine and diploma-holders in indigenous medicine. What the result of the combined teaching of two separate systems of medicine, basically different, to immature young men and women who have not got a thorough grounding in one system or the other would be, I dread to think of. If, instead of mixing the two and making confusion worse confounded, they had resolved that those who are anxious to practise the indigenous system of medicine should first graduate themselves from the College of Modern Medicine and then take to a full course in the Indian System of Medicine, they would have acquired and assimilated a sufficient knowledge of the modern system of medicine to be able to make a comparative study of the value and utility of the two different approaches and make use of the wide knowledge they have gained of both systems of medicine for the benefit of the community at large.

DRUG CONTROL

The first World War opened the eyes of our country to the utter helpless condition in which it found itself so far as her requirements of drugs and medicines were concerned. When the sources dried up when the countries on which we were dependent most for our essential requirements were involved in war, we found ourselves in the most unenviable position, and serious and systematic attempts were made for the first time to produce in the country itself some of our essential requirements.

The continued clamour for an all-India legislation on a comprehensive scale resulted in the introduction and passage of the Drugs Act in 1940. The implementation of this long-delayed legislation had to be further postponed as a result of World War II, and the Rules framed under the Act in 1942 were finally adopted only in 1945. Under this Act now in force, the Central Government is responsible for the regulation of imports of drugs into India and the control of their standards. And some time back the Drugs Consultation Committee, provided for in the Drugs Act for better inter-provincial

co-ordination and licence of drug control work, has been constituted. It is a good sign that many Provincial Governments are alive to the urgent need of setting up Provincial organisations and are striving their utmost in setting up such machinery. Now that the Drugs Control Act is in force and the flooding of the Indian market with spurious drugs has become an impossibility, it is time the members of the profession consider seriously the question of interesting themselves in the manufacture of our essential requirements in the country.

THE PHARMACY ACT

Closely allied to Drugs Control is the Control of Pharmacy. The Control of the one leaving the other out of account would lead us nowhere. The Chopra Committee found a very sorry state of things prevailing in the country at the time they made the enquiry. They therefore made simultaneous recommendation for pharmacy legislation also to improve the standard of education of the pharmacist and to protect qualified workers from quacks and charlatans. And the Bhore Committee also drew pointed attention to the urgent and immediate need for strengthening this group of health personnel in the interest of India's future development of national health and medical cadre. Under the Pharmacy Act of 1948 a Central Pharmacy Council has been constituted for the uniform control and guidance of the pharmaceutical profession and practice. The Council has started functioning and it has formed under its auspices a Pharmacy Education Regulations Committee to draft a comprehensive all-India legislation for controlling the minimum standard of education considered suitable for registration as a practising pharmacist, and Provincial Pharmacy Councils and Registration Tribunals have already been established or are in the stage of being established in some Provinces.

REFRESHER COURSES

Graduates who are turned out of the medical colleges after a long course of training have either to seek service or set up private practice to make their living. Most of them have to settle down in mofussil places where they believe they have the prospect of making good. They thus get isolated, cut off from the main fountains of knowledge, with little or no facilities to keep themselves abreast of the latest developments in a fast growing and developing medical science, plodding their way through with the knowledge they had acquired during the course of study in the Medical Colleges. This not only impairs their efficiency but also minimises their usefulness to the community, to whose service they have dedicated themselves. It is, therefore, necessary and urgent that a system of Refresher Courses at periodical intervals in the various teaching institutions for short periods in the various branches of medicine and surgery, to brush up their knowledge and make them posted with the latest developments in the huge ocean of medical science should be introduced. The University of Madras had arranged for such refresher courses some years back, but I have not heard much about it of late. It is urgent and necessary that every university should arrange for such refresher courses in the interests of the medical practitioners.

DENTISTS' ACT

While the Government of India are to be complimented for placing on the Statute Book the Dentists' Act for the better regulation of the profession, it is very much to be regretted that in the schedules of recognised qualifications the general practitioners who have specialised in dentistry should have been placed in Schedule B which is meant for registering unqualified and untrained quacks practising dentistry in the country. This is certainly an insult to the members of the profession who have been practising this speciality for long and who, by virtue of their general qualification and the long practice they have had these long years, are entitled to recognition and respect. It is because the medical profession is not properly represented in the legislative bodies of the country that serious injustices of this kind have become possible. It is, therefore, of the utmost importance that able and experienced members of the profession should come forward to contest seats in legislative bodies not only in the interests of the profession itself but also in the larger interests of the country.

ROLE OF THE GENERAL PRACTITIONERS IN MEDICAL PRACTICE

This is a problem to which serious attention has been paid of late. The Indian Medical Association has been, for some years past, urging upon the Government the need of putting a stop to the private practice of all Government Medical Officers, except those serving in rural areas. The suggestion has been put forward in the interests of the poor and lower middle classes, no less than in the interests of education and research. This is opposed by some people on the ground that it would deprive the upper middle classes of the benefit of expert advice of Government specialists. Such a line of reasoning presupposes the non-existence of a number of specialists outside Government service to cater to their needs, which is not true.

CONCLUSION

Ladies and gentlemen, I want now to impress upon you the need for unity and single-mindedness of purpose in the great and herculean task that lies ahead of us and of the country. The Indian Medical Association has, since its inception, done yeoman service to the cause of the profession; it has very largely consolidated its ranks; it has enhanced the reputation of the profession and the self-respect of the members here in this country; it has secured for it the respect and recognition of similar organisations abroad; it has got admission as a member of the World Medical Association and of the British Commonwealth Medical Conference; it has obtained representation for us in the general assembly of these organisations. Yet it can be made to play a still greater part in the future than it had been possible for it in the past. This requires unity, this requires strength. The membership of the Association has considerably increased in recent years; and yet it has not attained the stage when it can claim to be the only true representative organisation of the profession in India. Those members of the profession who have kept themselves aloof from the organisation so far should join it and increase its strength and enhance its power for good. In such a rapidly growing organisation it is but natural that differences on matters of detail should crop up every now and then. I am not disheartened at such happenings. They are but signs of growing strength and growing self-respect. But these should not be allowed to take such a shape as would weaken the Association. But this is an all-India matter, that should be discussed at the All-India level. It should not be beyond human ingenuity to evolve a plan which, while not weakening the Central organisation, would, at the same time, afford suffi-

cient scope for the branch organisations to grow and develop. I appeal to the members to stand united, shoulder to shoulder, for the great cause of humanity which beckons us to come to its aid. Let us go ahead with faith in ourselves and faith in the future of our beloved motherland.

* * * * *

RESOLUTIONS

The following resolutions were passed at the Mangalore Conference:—

This Conference places on record its deep sense of sorrow on the passing away of the following members during the year and authorises the Provincial Secretary to convey the same to the members of the bereaved families.

1. Dr. A. T. Rajabadar of Madras, 2. Dr. V. Govindarajan of Madras, 3. Dr. G. R. Narayanaswami of Madras, 4. Dr. S. Pichumani of Madras, 5. Dr. S. Gopalan of Madura, 6. Lt.-Col. M. A. Parthasarathy of Madura, 7. Dr. V. I. Raman of Malabar, 8. Dr. K. N. Krishnan of Malabar, 9. Dr. P. V. Krishnan of Coimbatore, and 10. Dr. A. G. Bhat of Mangalore.

This Conference while supporting the Prohibition Policy of the Madras Government, is of opinion that the rules framed thereunder are working as a great hardship to the medical profession in as much as restrictions are placed on the purchase and possession of B. P. Tinctures and spirituous preparations. This Conference requests the Government to withdraw the orders already passed in this connection and consult the South Indian and Andhra Provincial Branches before passing any new order.

This Conference recommends to the Government that the municipal bodies should be permitted to pay their medical officers on a par with the colleagues in the Provincial Service.

It recommends that in view of the prevailing ignorance amongst the public regarding Cancer and lack of adequate treatment facilities and for training medical men outside Madras, the Government should implement the following:

(*i*) A net work of diagnostic clinics in the districts to detect cancer early should be created.

(*ii*) Adequate therapeutic facilities in Vizag, Madura and Calicut in addition to Madras should be provided.

(*iii*) Reception homes for cancer cases and homes for incurables should be created.

It urges the Government to raise the salaries of the rural medical officers from Rs. 900 to Rs. 1800 and midwives from Rs. 300 to Rs. 600 a year.

It recommends to the Government and the High Court to issue instructions to the presiding officers in courts of law, both civil and criminal, to take the evidence of medical men with the least possible delay when they appear before them in their professional capacity.

This Conference while reiterating its resolution passed last year urges the Government of Madras and the Universities of Madras and Andhra to expedite starting of the medical colleges at Madura and Guntur from the next official year at the latest and that after these two colleges are opened, the next college must be in the West Coast.

This Conference while reiterating the resolution passed at the last year's Conference at Annamalai Nagar on the urgent necessity of starting mobile medical units in a number of Taluks suggests to the Government that if there is delay in implementing this scheme the Government should at least help organisations which are starting such mobile units.

X BIHAR PROVINCIAL MEDICAL CONFERENCE—The tenth Bihar Provincial Medical Conference was held at Daltonganj on 24th and 25th November, 1950 under the presidentship of Dr. Raghunath Saran of Patna.

The following are excerpts from the presidential address by Dr. Raghunath Saran, M.R.C.P. (London):—

PRESIDENTIAL ADDRESS

Regarding the customary address to this Conference I have tried to make it as brief as possible by omitting most of the conventional items and concentrating only on those affecting the health of the community. I shall also refer to certain other questions which interest us as a community. Before I deal with these I would request you all to rise in your seats to pay homage to the memory of our worthy colleagues Dr. K. S. Ray of Calcutta, Dr. A. Bakshi of Dhanbad, Dr. R. Das of Jharia, Dr. J. R. Das Gupta (Jamshedpur), Dr. N. M. Sinha (Sherghati), Dr. R. C. P. Sinha (Aurangabad), Dr. J. N. Mukherjee (Dinapore), Dr. R. Chaudhury (Ranchi), and others. The late Dr. K. S. Ray who died recently at Vellore of sudden heart failure was one of the foremost leaders of our profession.

I would also request you to join me in congratulating our esteemed colleague Dr. T. N. Banerjee for his providential escape in the recent plane accident and for his being elected President of the Indian Medical Association.

In solving the medical and public health problems of our province we should widen the scope of our enquiry into the causes and conditions that contribute to ill health and disease and suggest practicable means of combating them. The health of a community depends largely upon social, economic and environmental conditions. Preventive medicine is mostly dependent upon these. It is not enough to provide the community with a large number of trained medical personnel and institutions.

Social, economic and environmental conditions in our province are inimical to good health of the community. I need not enumerate them. They are much too obvious and you all are aware of them. During the last ten years there has been a progressive deterioration in the economic condition of the people with the result that diseases arising out of malnutrition and insanitary condition have considerably increased and are taking a heavy toll of human lives. A determined and resourceful administration can mitigate much of the present suffering of the people. But it is a fact that in this, as in other spheres affecting the health of the people, the Government have no definite plans and even the administrative machinery installed for this purpose by our former rulers is not functioning as efficiently as before. There is all-round lethargy, with incompetence and corruption. Public discontent against the existing conditions whenever it rises high and manifests itself by an outcry in the press, the platform and in the Legislative Assembly, is damped down by a half-hearted promise of a fact-finding committee which would give suggestions to the Government to remedy the grievances. I have

a personal experience of a number of such committees. The facts found by them and their suggestions have been buried in secretariat files and except for minor repairs here and there the old structure remains as it was, and in certain respects has further decayed.

RURAL MEDICAL WORK

At present there is a great deal of loose talk about conscription of medical men for national medical service in the way the Labour Government in the U.K. have done. Conditions in our country are not at all propitious for the socialization of medicine even on a limited scale over a confined area. We do not possess the necessary resources for its application in our country. A suggestion has also gone round that medical students, after qualifying for the M.B., B.S., should be compelled to undertake rural work for one year or 6 months' hospital work and 6 months' rural work before they are granted the diploma to practise. In my opinion the newly qualified graduate in 'medicine' should more profitably enlarge his clinical knowledge and experience under proper guidance at a teaching institution or under an experienced clinician at a well-equipped hospital. For rural work, an experienced hand well-trained for all-round medical work would be more suitable than a raw medical graduate who has yet to find his way about in the practice of his profession. I do not favour the idea of rural people being provided with inefficient medical aid and treated as subjects for experiment and training of the recently qualified graduates.

In the existing arrangement for the training of medical personnel, there are certain inherent defects. First, the teaching staff are not whole-time workers even in non-clinical departments. For intensive teaching of medical students and for research work, it is most essential that a good number of staff in each department should be non-practising. I do not object to the appointment of part-time and honorary teachers and professional men of experience and qualification on the hospital and teaching staff. In respect of pay, allowances and privileges, a suitable adjustment on a fair and equitable basis should be made between the different kinds of workers. Further, I am not at all in favour of concentrating those with post-graduate qualifications and long experience in a particular line at the teaching medical institutions. Only the most necessary personnel should be retained at these and the rest transferred to take charges of mufassil hospitals to improve the quality of medical aid at those places and thereby also relieve the heavy pressure of patients at the teaching hospitals. It would be a good thing if each department in a teaching medical institution on its clinical side has a permanent staff that is not only non-practising but also non-transferable. A certain proportion of staff on the clinical side, after obtaining due training in general and special work, should be transferred to mufassil hospitals.

SPECIAL DEPARTMENTS

Of late the Government have been rather too hasty in opening special departments for treatment of particular diseases without a properly trained and experienced staff. Newly qualified personnel with short course diploma in particular diseases and with no large experience of general work are being placed in sole charge of these special hospitals and wards. The professors and lecturers possessing high qualifications in general medicine and surgery and with wide experience of all kinds of work in their particular line are being kept out of these departments. Further, the "in charges" of these special departments are not in touch with cases outside their own speciality. From the professional point of view this is an absurd arrangement.

MODERN MEDICINE

Modern medicine has advanced far on the road to prevention and cure of diseases and the impediments to its application to obtain the fullest benefits from it have to be removed. To discourage it on grounds of cultural vanity and prejudice because of its alien origin is in my opinion a disservice to the community. Systems that flourished in our country two thousand years ago and have become stagnant since should not be upheld today because of sentimental attachment to them and on grounds of cheapness and easy application. What is good in them should be exploited to the best advantage by organising research on them on modern lines.

Today we have separate schools for the training of hakims and kavirajas and students who pass out from these institutions use the instruments that we do in our clinical diagnosis and treatment. They use our drugs and injections on their patients although they have not obtained any training for such use and application. In the rural areas these people, as also compounders and homœopaths practise in the modern system of medicine for which they have not obtained any training and qualification. To protect the public from a mis-application of our system of medicine by these people, strict legislation and a rigid application of laws against quackery is necessary. If for economic reasons the Government feel that kavirajas, hakims and homœopaths must carry on their practice as we do, they should make it incumbent on them to keep their own mode of diagnosis and practice. Otherwise, as suggested above, they should be properly trained in modern medicine at our institutions and at a later stage follow whatever pharmacopœia they chose in actual practice.

RECOGNITION OF MEDICAL CERTIFICATES

The Government policy in the matter of recognition of medical certificates, specially those granted by private practitioners, has been a cause for utmost annoyance to practising doctors. No fixed principle has been laid down by the State to guide its officers and it is entirely at their discretion that they recognise one and refuse the others for no particular reason. Personal bias rather than justification prompts them. The result is that certain eminent private medical practitioners and some among them who only the other day were occupying posts of great responsibility and trust under the Government and have now retired, have on occasions to suffer the indignity of having their medical certificate countersigned by a recently qualified Asst. Surgeon who may even be working as a temporary hand. It is really absurd to imagine that a medical man transforms himself overnight by being taken into the service of the Government so much so that his medical opinion and integrity obtain a higher value than those of his senior colleague in service and practice, who may at one time have been his teacher and boss. The knowledge of some of the officers of the Government in medical matters is indeed pathetic. I remember one case in which a police officer refused

to accept a medical certificate obtained by one of his subordinates for his treatment by a well-known specialist at Patna. In doing so, this worthy officer made a very funny remark, "Certificate of so and so, an M.B. not accepted, obtain certificate from Asst. Surgeon of . . ." I need not make any comments on the general knowledge and commonsense of this particular officer. The inference is obvious. This is but one of so many other instances of a similar nature. At present all who can afford to do so seek expert medical advice for their illness and I do not see how any sensible Government can create conditions that would deter a State employee from obtaining the best medical aid. It is a fact that State hospitals in the mufassil are staffed by mediocre and mostly comparatively junior medical officers. In actual practice these medical officers do not relish being called upon to certify a person for medical leave who is under treatment of some one else and rightly so.

The Government have introduced the novel practice of asking for countersignature of medical certificates given by private practitioners and specialists by a State medical officer. They are unconsciously violating their own rules on the subject in so doing. The Medical Council of this province, in the matter of granting of medical certificates, makes it obligatory that the person giving it should have treated the applicant as a patient or at least examined him personally. The Government attitude in this respect is a legacy of the period of alien rule when anybody however eminently placed he might be in the profession was mistrusted and reliance was only placed upon those in actual employ of the Government. Our present rulers, who in those times most vehemently spoke against the bureaucracy and condemned their practices have now forgotten their pious preachings and their civil servants have hardly got over their mentality of the old times and yet suffer from the same inhibition. I do trust and hope that Government would revise their attitude in this matter.

I trust that my critical references to the Government on the subject of medical administration in our province will not be misunderstood by them. I have done so with the best of my intentions. The Provincial Medical Association and myself extend our fullest co-operation and help to the Government in their endeavours for improving the quality and quantity of medical aid in our State.

Dr. Raghunath Saran
President, X Bihar Provincial Medical Conference, Daltonganj.

RESOLUTIONS

The following resolutions were passed at the 10th Bihar Provincial Medical Conference:—

1. The necessity is felt for a Central Civil Health Service on an all-India basis, in the lines of the newly formed Indian Administrative Service and the Indian Police Service. It should be strictly a Civil Service and not a replica of the (Old) Indian Medical Service which was essentially meant for defence.

The creation of an All-India Service will raise the standard of our health services, by giving scope to the deserving people, and provide co-ordination in every sphere of medical organisation,—teaching, research, health etc.

It is therefore resolved that a Civil Health Service which may be termed Indian Health Service on the lines of other all-India Services be created immediately.

2. Resolved that it is the inherent and unquestionable right of every individual to choose his own physician and this principle should be recognised without any reservation by all employers whether Government or others and it is further resolved that a medical certificate given by the treating physician should be considered valid.

It is further resolved that all employers whether Government or others be requested to stop immediately the practice of having a medical certificate given by a registered medical practitioner countersigned by one in their own employ.

3. Resolved that a State Health Board be constituted in which our Association should have an effective voice in advising the Government in matters of plan and policy of medical and public health administration in our State.

Resolved further that both medical and public health should be brought under one Minister and one administrative director designated respectively as Health Minister and Director of Health Services.

4. Reiterated that the Irrigation Department authorities be moved to exempt the members of the medical profession from the ban on using the Canal Service Road for proper and quick rural medical relief.

5. Resolved that the Local Self Government be moved to reconsider the grievances of the medical officers serving under the District Board and expedite the matter of revision of pay scale of the doctors according to the suggestions laid down by the Government Pay Revision Committee.

6. To popularise and improve the training and activit'es of the St. John and Indian Red Cross Societies in our State

their organisations should be broadbased to include nominees of the Indian Medical Association and other members of the public interested in social welfare.

7. In order to popularise the branches of the Medical Association and to carry on humanitarian work this Conference calls upon all the members of the different branches in the State of Bihar to organise popular lectures periodically at suitable places and times in order to awaken health consciousness among the masses.

8. To protect the people from an apprehended outbreak of an epidemic disease on account of the present scarcity condition and high prices of food stuffs, this Conference urges upon the Government the necessity of their taking measures for providing adequate food stuffs at prices the public can comfortably afford. It further advises the Government to take all possible measures to prevent adulteration of foodstuffs by greedy dealers and Government ration shopkeepers.

ASSAM PROVINCIAL BRANCH—At a meeting of the Working Committee of the Assam Provincial Branch held on 15th October, 1950 at the residence of Dr. H. K. Das, 11 members were present and Dr. Das presided.

The Secretary informed the Committee that two new local branches were formed at Jorhat and Nowgong. The Secretary also informed the Committee that Dr. H. C. Baruah of Shillong was duly elected as the President-Elect of the 2nd Provincial Medical Conference.

TANJORE BRANCH—At a general meeting of the Tanjore Branch held on 21st October, 1950, 50 members were present. After routine business, Dr. P. S. Varadarajan spoke on "Shock, syncope and allied manifestations and their management in general practice."

MADURA BRANCH—At a general meeting of the Madura Branch held on 21st October, 1950 in the Erskine Hospital, 55 members were present and Dr. P. Vadamalayan presided. Dr. M. Ismail, the new D.M.O., announced that a site of about an acre in Shenoy Nagar had been purchased from the Municipality for the association, with the assistance of Capt. Gnanaolivu and Lt. Col. Parthasarathi. A building subcommittee was appointed to devise ways and means for the construction of the association building.

After the routine business, Dr. K. Ramachandran spoke on "Some aspects in the treatment of ano-rectal diseases."

U. P. STATE BRANCH—At the 7th meeting of the Working Committee of the U. P. State Branch held on 9th September, 1950 at Dr. Sen's residence, 9 members were present and Dr. Sood presided.

The Committee considered the situation created by repeated earthquakes in Assam, floods in various parts of U.P. and evacuation of refugees from Eastern Pakistan. The Secretary was requested to take necessary measures for relief work.

The Secretary announced that the following have been elected as the President and Vice-Presidents of the U.P. State branch—*President*—Dr. A. C. Banerjee (Lucknow), *Vice-Presidents*—Dr. C. P. Tandon (Faizabad), Dr. K. C. Pathak (Mathura) and Dr. K. D. Tripathi (Basti).

The Committee then discussed the detailed replies of the Government of U.P. conveying their decisions on the resolutions passed by the Faizabad Conference.

FEROZEPORE BRANCH—In a memorandum submitted to the Hon'ble Minister of Rehabilitation and Health, Punjab State, on 12th November, 1950 at Ferozepore, the members of the Ferozepore Branch of the I.M.A. raised among others the following points:—

The Indian Medical Association is the only representative body of the Medical profession which has been recognised by the Government of India and is thus the sole organisation to represent the grievances and opinions of the medical profession on all matters of medical administration, medical education and other allied subjects of public health.

The local branch of the Indian Medical Association feels that it has not been given adequate representation on the following committees and requests that members of the I.M.A. be taken on all such committees, namely:—

1. Hospital Visiting Committees;
2. Civil Defence Committee on A.R.P.;
3. Jail Visiting Committee;
4. Anti-Tuberculosis Clinic Committee; and,
5. All such committees appointed by local bodies which deal with public health and hygiene.

Some members of the profession are on one or more of the committees but they are in their individual capacity. The procedure in such cases should be that the I.M.A. should be asked to send a nominee of theirs.

It is a matter of great pity that the Punjab Assembly passed a bill allowing hakims and vaids to use and prescribe sulpha drugs about which they know very little. These are poisons and are included in Schedule E of the Drugs Act and, therefore, should not be used by a person other than one who is duly qualified and competent to use them. We, therefore, demand that this legislation should be amended.

The Indian Medical Association is of the firm opinion that unqualified practitioners should not be recognised by the medical profession and the State. We urge that the provisions of the Drugs Act should be enforced with rigidity and strictness and no contravention of the same should be tolerated under the law. At the same time we object to the clause relating to the registered medical practitioners keeping an account of the drugs contained in Schedule E, even though they dispense it for their own patients. This clause should be deleted.

Inspectors under the Drugs Act should be medical men and under the supervision of Health authorities and not under the Excise Department. Linked with this is the question of registration of compounders, vaids and hakims. The register of compounders is very defective in the sense that they have managed to get certificates without fulfilling the requisite qualifications.

We should refuse to be led away by sentimentalism in science. Science is one all over the world, and medicine is not an exception. None should be recognised as a qualified practitioner unless he already had the approved training in scientific medicine, and studied the nature of disease and its diagnosis. This training should be the same for all. There could not be the least compromise in this matter. Once a man has passed these tests at the end of his training he should

be at liberty to follow his predilections. He might then be a hakim, vaid, homœopath or a naturopath and not a Doctor as desired by some of our legislators. No one whatever his views on law might be, can practise as an advocate unless he has undergone the training prescribed by the faculty of law; why should the same not apply to medicine.

Now that a register of hakims and vaids is being made, due care should be taken, and the prescribed period for which a person must be practising should be at least 15 years. We suggest that advisory committees be appointed in this respect in every district to supervise the registrations of hakims, vaids, and compounders, to which the Indian Medical Association should be given adequate representation.

The Weight And Measures Act has been made applicable to doctors running dispensaries of their own for their own patients. This is highly insulting. We only dispense medicines for our patients and we should be left to ourselves and not pested with legislations of this type.

Registered medical practitioners should be given honorary appointments in hospitals as physicians and surgeons to enable them to render real service to the suffering humanity.

BHAGALPUR BRANCH—The last annual general meeting of the branch was held on 11th September, 1950 at the residence of Dr. K. P. Rama, with Dr. B. K. Banerjee on the chair.

Dr. D. N. Neogy and Dr. S. Mitra were elected as President and Secretary respectively for the year 1950-51.

BHAVNAGAR BRANCH—The 8th annual general meeting of the branch was held on 23rd September, 1950.

After Major C. P. Bhatt, the retiring President, spoke on the activities of the branch for the previous year, the routine business was transacted.

Dr. H. J. Trivedi was elected as the President for the year 1950-51. Dr. K. A. Kamdar and Dr. P. S. Oza were also elected as Joint Secretaries.

MALEGAON BRANCH—The last annual general meeting of the branch was held on 24th September, 1950 with Dr. D. N. Chobhe on the chair.

After routine business was transacted, Dr. V. R. Gadgil was elected as President and Dr. G. S. Parnaik as Secretary for 1950-51.

MATHURA BRANCH—At the last annual general meeting of the branch held on 26th September, 1950, 12 members were present and Dr. S. K. Mukerji presided.

After the routine business was transacted, Dr. S. K. Mukerji was re-elected as President and Dr. R. Gupta elected as Secretary for the year 1950-51.

CACHAR BRANCH—At the last annual general meeting of the branch held on 30th September, 1950, 21 members were present and Dr. P. C. Das presided. Dr. P. C. Das was re-elected as President and Dr. S. P. Nath as Secretary for the year 1950-51.

After the routine business, some interesting cases were demonstrated and discussed by the members.

JAMSHEDPUR BRANCH—The last annual general meeting of the branch was held on 30th September, 1950, with Dr. B. Mukherji on the chair.

Dr. B. Mukherji was re-elected as the President and Dr. S. Banerji as the Secretary for the year 1950-51. The members, at this meeting, finally decided to invite the Bihar Provincial Medical Conference to be held in 1951 at Jamshedpur.

BOMBAY WEST SUBURBAN BRANCH—At a bi-annual meeting of the branch held on 8th October, 1950, Dr. C. S. Thakar, President of the branch delivered an address of which the following is an extract:—

The Bombay West Suburban Branch of the Indian Medical Association was founded on 20th October, 1940. A very large proportion of the medical men practising in the area from Bandra to Borivali is on our Members' roll and takes keen interest in our varied activities.

Greater Bombay Merger—An event of considerable importance to our civil life occurred on 1st April, 1950 by the merger of a part of our branch territory *viz.*, the area from Bandra to Jogeshwari into the Bombay municipal administration. Simultaneously, certain municipal units to the east of the Railway lines *viz.*, Kurla, Ghatkoper etc. were also included in the newly created Greater Bombay. Thus, after a lapse of many long and weary years of lax suburban administrations with their backward amenities, we are now a part and parcel of Bombay and look forward to better times and wider opportunities. I have on several occasions from this platform made references to our sad plight in many directions, especially sanitation and medical relief. At present Bandra proper and Khar are the only areas provided with a drainage system. If public health has to be improved, the rest of the area should be given the benefit of an upto-date drainage scheme.

Medical Relief—The medical relief available to the public in the parts is a sham and a mockery. There is only one public hospital at Bandra and some dispensary units at Santa Cruz, Andheri and Malad. There is in addition a mobile van which visits different places on different days. This sums up in a nutshell all that exists at present. I plead that immediate steps should be taken to start municipal dispensaries and maternity homes in these wards. I have often stressed the need for a Public Hospital in the north of the city in view of the expansion of the city in that direction. May I draw the attention of the authorities to the Doctor Balabhai Nanavati Memorial Hospital which is nearing completion in Ville Parle at a cost of nearly 20 lacs of rupees and is expected to be ready for occupation in the near future. I am given to understand that due to shortage of funds only 50 beds (25 paying and 25 free) out of a total of 130 to 200 beds in the new Hospital will be opened to the public at present. Here is a great opportunity for the Municipality to provide ready medical relief to the public by taking over the management of the Hospital in agreement with the governing body of the institution. The place is central and the building a magnificent modern structure. I hope that our municipal authorities will not allow this golden opportunity to slip through their hands.

L. C. Bill No. II of 1950—I shall now refer to the amending bill to the Bombay Medical Act of 1912 which has been introduced and passed in the Legislative Council and will shortly

come up for discussion in the Assembly. Among the amendments proposed in the bill there is one which empowers the State Government to levy a renewal fee for the continuance of each registered medical practitioner's name on the Register from time to time. This is a most obnoxious measure and our Provincial Branch has lodged a vehement and unanimous protest against the imposition of this levy on the medical profession. If money has to be found for the upkeep of the Medical Council, surely it must come from the general funds because the basic idea for its existence is the control and regulation of the profession in public interest. I hope the Hon'ble Minister of Health who is sponsoring this amending bill will see light and desist from thus penalising the medical profession to which he has the honour to belong.

Medical Ethics—The medical man of today has to live up to a high sense of professional discipline if the fair name of the profession with its noble traditions is not to be besmirched. This applies with equal force to the young as well as the old members of the profession. Each member must learn to treat the other as a loving member of the family and must learn to exult in his welfare. Goodwill, harmony and a healthy discipline within the Association are our greatest need, if we wish to prosper.

MIRAJ BRANCH—The annnual meeting of the Miraj Branch was held at Dr. Gorde's residence on 11th October, 1950, with Dr. D. P. Gorde, the retiring President in the chair to elect the new office-bearers for the coming year.

Dr. M. S. Karaudiker gave out in details the last year's Association activities and steps taken to build the Association Hall in Miraj.

Then the following office-bearers were elected: Dr. V. V. Kumbhjker—*President*, Dr. A. H. Gandhi—*Secretary* and Dr. N. R. Pathak—*Joint Secretary*.

SOUTH INDIAN PROVINCIAL BRANCH—The last annual meeting of the Council of the branch was held on 12th October, 1950 at which 13 members were present and Dr. P. A. S. Raghavan presided.

At the outset, the members condoled the sad deaths of Drs. A. G. Bhat, V. I. Raman, M. A. Parthasarathy, P. V. Krishnan and G. R. Narayanaswami.

Dr. U. Krishna Rao and Dr. A. K. Rajagopalan were elected as president and secretary of the branch for the year 1950-51. Dr. Rao promised to contact insurance experts to devise a scheme of insuring doctors, at a concessional rate.

ASSAM PROVINCIAL BRANCH—The annual meeting of the branch Council was held on 25th October, 1950 at which 28 members were present and Dr. H. K. Das presided.

Dr. H. C. Baruah was elected as the President for the year 1950-51 and after some routine business was transacted, the meeting was adjourned.

At the adjourned meeting held on 26th October, 1950 with Dr. Baruah in the chair, 14 members were present. The Secretary, Dr. P. C. Duarah, informed the members that their provincial branch was started in February, 1949 with only 3 local branches and 45 members. In the course of the year under review, 13 old members were re-enlisted and 74 new members were also enrolled. Dr. Duarah was re-elected as Secretary for the second year *i.e.* for 1950-51.

SULTANPUR BRANCH—The annual general meeting of the branch was held on 26th October, 1950 with Dr. S. S. Missra in the chair.

The members condoled the sad death of Dr. K. S. Ray. Dr. Missra and Dr. K. C. Majumdar were re-elected as President and Secretary for the year 1950-51.

CHAPRA BRANCH—At the annual general meeting of the branch held on 29th October, 1950, with Dr. B. N. Banerji in the chair, Dr. A. B. P. Sinha and Dr. L. P. Verma were elected as President and Secretary for the year 1950-51.

BOKARO BRANCH—At the annual general meeting of the branch held on 29th October, 1950 at the residence of Dr. P. R. Bhattacharya, 11 members were present and Dr. Bhattacharya presided.

The members condoled the sad death of Dr. K. S. Ray and elected Dr. S. N. Banerjee and Dr. P. K. Mozumder as the President and the Secretary respectively for the year 1950-51.

BANGALORE BRANCH—The annual general meeting of the branch was held on 29th October, 1950, with Dr. M. N. Mahadevan in the chair. The members condoled the sad death of Dr. K. S. Ray. Dr. T. K. Dayalu was elected as President and Drs. M. Sirsi and N. S. Alasingrahcar as Secretaries for 1950-51. Lt.-Col. Karamchandani, Dr. S. S. Jayaram, Dr. Dayalu, Dr. H. Krishnamurthy and Dr. M. Sirsi then spoke on the different aspects of hyperpiesia.

BASTI BRANCH—The annual general meeting of the branch was held on 30th October, 1950 with Major J. N. Jaswal in the chair. 17 members were present. Dr. R. B. Lall spoke on his experiences during his tour in Basti district and the health problems of the district were discussed.

U. P. STATE BRANCH—At the first meeting of the Working Committee of the branch for 1950-51 held on 3rd November, 1950 at the residence of Dr. Sen, 5 members were present and Dr. A. C. Banerjee presided.

The Committee condoled the sad death of Dr. K. S. Ray of Calcutta and Dr. D. P. Ghosh of Banaras. The Committee elected Dr. H. N. Shivapuri as their representative to the Council of Physical Culture. The Secretary read out a letter pointing out that on one gallon of rectified spirit costing Rs. 1/8/- only, the duty was Rs. 102/- per gallon. The Committee recommended that this matter should be taken up at the Conference.

JALPAIGURI BRANCH—The annual general meeting of the branch was held on 11th November, 1950, at which 26 members were present and Dr. A. B. Banerjea presided.

The members condoled the sad death of Dr. K. S. Ray and elected Dr. A. D. Guha Neogy and Dr. S. C. Bhowmick as President and Secretary for the year 1950-51.

The Secretary informed the members how a dispute between a member and the relation of one of his patients was amicably and satisfactorily settled by the authorities of the branch.

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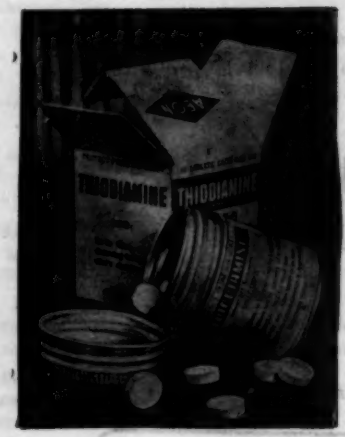

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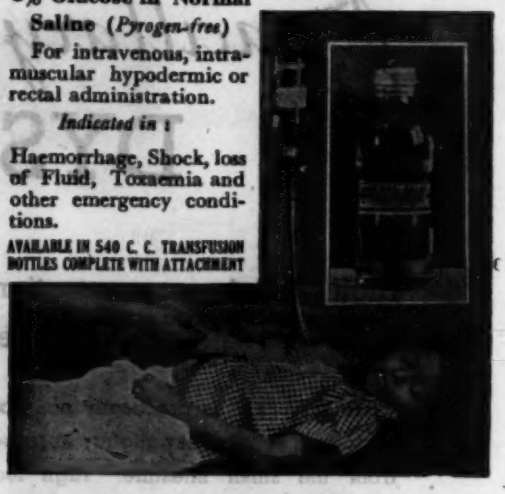

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